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Reproductive Risks and Intentions

Adolescent Fertility in Latin America and the Caribbean

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Note to Authors

International Family Planning Perspectives is a peer-reviewed quarterly journal publishing research articles about the developing world that are intended to be of assistance to professionals in the fields of fertility and family planning, maternal and child health and population policy. The editors invite researchers, policymakers and program operators from around the world to submit articles on such topics as contraceptive practice and research; population growth; fertility levels, trends and determinants; childspacing; public policies and legal issues affecting family planning and childbearing; family planning program operation, development and evaluation; information, education and communication activities; sexually transmitted diseases; and reproductive, maternal and child health. Manuscripts should be sent to the address below, and should include the complete affiliation, address, telephone number and Fax number (if possible) of the author with whom we are to correspond.

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Each table and chart should be on a separate page. Authors should check previous issues of *International Family Planning Perspectives* to gain an idea of how tables are to be styled. Authors must supply data points for all line graphs and charts; final art work will be done by the journal's staff.

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International Family Planning Perspectives es una revista trimestral que publica monografías sobre el mundo en desarrollo destinadas a asistir a profesionales en las esferas de fecundidad y planificación familiar, salud maternoinfantil y política de población. Invitamos a investigadores y responsables de políticas y programas de todo el mundo a que presenten artículos sobre temas tales como práctica e investigación en materia de anticonceptivos; crecimiento demográfico; niveles, tendencias y determinantes de la fecundidad; espaciamento de los hijos; políticas oficiales y cuestiones jurídicas que afecten la planificación familiar y la fecundidad; aplicación, elaboración y evaluación de programas de planificación familiar; actividades de información, instrucción y comunicación; enfermedades transmitidas sexualmente y salud reproductiva y maternoinfantil. Los originales deben enviarse a la dirección que figura más abajo, debiendo constar en ellos filiación completa, domicilio postal, teléfono y, de ser posible, numero de Fax del remitente.

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UPDATE

AIDS Hits Côte d'Ivoire

Of approximately 1,500 consecutive patients admitted during 1988 to the two main hospitals in Abidjan, the capital of Côte d'Ivoire, 547 were infected with the human immunodeficiency virus (HIV) and 263 had AIDS.[1] In all, 43 percent and 28 percent of those admitted to each of the hospitals were infected with HIV, and at each hospital, infection rates were higher among male patients (49 percent and 33 percent) than among female patients (30 percent and 19 percent). The highest rates of HIV infection and of AIDS were found among 30–39-year-olds and among men and women born outside of Côte d'Ivoire. The researchers estimate that at these rates, the two Abidjan hospitals could expect to admit 1,252 new AIDS cases each year, 1,015 of these among residents of Abidjan. They also observe that at the time of the study, 19 percent of all admissions and 33 percent of all deaths in one of the hospitals could be attributed to AIDS. The disease "has rapidly emerged as a major public health problem" in Abidjan, the investigators conclude.

1. K. DeCock et al., "Rapid Emergence of AIDS in Abidjan, Ivory Coast," *Lancet*, II:408, 1989.

Sons Preferred in Pakistan

A recent analysis of data from a national survey conducted in Pakistan at the beginning of the decade reveals that son preference had a strong influence on fertility in Pakistan in the 1970s.[1] Sixty-six percent of all women with three or more children wanted no more children, but this proportion varied substantially by the number of sons the women had: Only 11 percent of those with no sons and 45 percent of those with one son wanted to cease childbearing, compared with 64 percent of those with two sons and 80 percent of those with three or more sons. Although in every subgroup, the proportions who wanted no more children were lower among rural women than among urban women, the pattern was clearly discernible in both groups. A multivariate analysis that controlled for a number of potentially confounding factors confirmed these differences: The investigators concluded that "the variable of son preference . . . remained the principal determinant for additional children even after the effect of predictors and covariates [was controlled for]."

1. S. M. Ali, "Does Son Preference Matter?" *Journal of Biosocial Science*, 21:399, 1989.

Singapore Muslims Reach Low Fertility

The predominantly Muslim Malay population of Singapore "stands out as the first Muslim population in the world to have achieved replacement level fertility," according to an analysis of 40 years of fertility data from Singapore.[1] In 1947, the first year for which data are available, the total fertility rate (TFR) among Singaporeans of Malay descent was 5.7 lifetime births per woman. By 1963, this rate had risen to 6.7 births per woman, but it then began to fall rapidly, and by 1976 had dropped to 1.9 births per woman. Since then, the TFR among these women has either remained below replacement level or climbed only slightly above it. The fertility decline started later among the Malay women (1964) than among ethnic Chinese in Singapore (1957), but the Malay and Chinese reached replacement-level fertility at around the same time (1976 and 1975, respectively); thus, Malay residents of Singapore required only 12 years to decrease their fertility to replacement level, compared with 18 years among the Chinese residents.

1. S. Swee-Hock, "Muslim Fertility Transition: The Case of the Singapore Malays," *Asia-Pacific Population Journal*, Vol. 4, No. 3, 1989.

Genital Ulcers and HIV Infection Risk

Fifty-nine percent of a group of 210 men and women who visited a clinic in Kigali, Rwanda, for examination or treatment of genital ulcers were found to have antibodies to the human immunodeficiency virus (HIV).[1] Of the 110 men examined, 24 percent had chancroid, 21 percent syphilis and 17 percent herpes, and 43 percent of the men were infected with HIV. Among the 100 women, 40 percent had syphilis, 20 percent herpes and 19 percent ulcerative chlamydial infection; 77 percent were infected with HIV. The investigators observe that their results confirm hypotheses that genital ulcers play an important role in the heterosexual spread of HIV.

1. J. Bogaerts et al., "The Etiology of Genital Ulceration in Rwanda," *Sexually Transmitted Diseases*, 16:123, 1989.

In Search of New Terminology

Family planning program staff in Nepal have not reinvented family planning, but they recently had to invent a new term for family planning.[1] As a result of the Nepal program's longtime strong emphasis on contraceptive sterilization, the old terminology for family planning *(parivar niyogen)* had become synonymous with surgical sterilization, not only among average citizens but also among government health workers. Because of the program's increasing commitment to promoting spacing and the use of reversible methods, program managers elected to develop a new phrase to represent this concept. Forty focus groups were organized around the country, and many participants agreed that childspacing was important. They also observed, though, that there was no phrase in their language for birthspacing. Besides asking the focus-group participants for suggestions, the project members also held a contest, and the two sources generated more than 200 ideas. After field-testing a

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final group of 17 phrases, the project leaders chose the phrase *janma antar* ("birth gap"), which is to become the central concept for all future promotions of family planning in Nepal, including radio and television spots.

1. S. Wittet, C. Shrestha and B. Manandhar, "How Do You Say 'Birth Spacing'?" *People*, Vol. 16, No. 4, 1989, p. 35.

Human Papillomavirus and Cancer

A 12-year study indicates that Indian women exposed to the human papillomavirus are at a highly elevated risk of developing cervical cancer.[1] Sixty-eight percent of women who developed carcinoma in situ were infected with the virus, compared with just 27 percent of women who had had an abnormal Pap smear but whose abnormality had resolved rather than progressed. A multivariate analysis revealed that the only other important factor in the risk of developing cervical cancer was early age at marriage, and that women married before age 18 who were infected with the virus were 22 times as likely as other women to develop cervical cancer.

1. B. C. Das et al., "Human Papillomavirus and Cervical Cancer in Indian Women," letter to the editor, *Lancet*, II:1271, 1989.

Writing for Those Who Cannot Read

For 10 years, the Program for Appropriate Technology in Health (PATH) has been developing brochures and booklets targeted to men and women in the developing world who cannot read or whose reading skills are limited. Now, PATH has put together a guidebook to help providers and other organizations develop their own print materials.[1] Step by step, the publication describes the most appropriate ways to develop ideas and test them. In their conclusion, the authors of the guide emphasize that the true experts in this area are the members of the target audience, and that they should be consulted regularly throughout the development process. The guidebook is free for anyone in the developing world, and can be obtained by writing to: PATH, Communication Dept., Suite 700, 1990 M St., NW, Washington, D.C., 20036.

1. M. Zimmerman et al., *Developing Health and Family Planning Print Materials for Low-Literate Audiences: A Guide*, Program for Appropriate Technology in Health, Seattle, 1989.

Fertility Decline in Nepal?

According to the results of a survey conducted in Nepal in 1986, fertility there may have begun to decline in recent years.[1] The total fertility rate (TFR) for the five years immediately preceding the survey is estimated to have been 5.6 lifetime births per woman, down from 5.8 per woman in 1975–1980; when data are restricted to 15–39-year-olds, the TFR appears to have declined from 5.6 births per women to 5.1 over the same period. The quality of the data collected was poor, especially among older respondents, so the contention that Nepal has entered a period of fertility decline awaits confirmation. However, other evidence gathered in the survey indicates that contraceptive prevalence rose from three percent in 1976 to 15 percent in 1986, and that the proportion of 15–19-year-olds who were married (often an indicator of high fertility) fell from 73 percent to 38 percent over the same period.

1. J. M. Tuladhar, "The Onset of a Fertility Decline in Nepal?" *Asia-Pacific Population Journal*, Vol. 4, No. 3, 1989, p. 15.

Marketing Vasectomy in Mexico

A social marketing program begun in the Mexican city of León in 1986 appears to have increased reliance on vasectomy there, despite the area's deep-seated conservatism.[1] In the year before the program was initiated, only 12 vasectomies were done in the entire city (which has a population of about one million). After setting up a clinic where vasectomies would be performed, the project placed advertisements in a variety of media, with the main emphasis on the message that vasectomy "is a useful family planning tool once you have the number of children you wish." In 1988, 322 vasectomies were performed in León, 254 at the new facility. Although the number of operations was still relatively small, the program organizers believe the experience shows that social marketing techniques can be used to promote vasectomy successfully, even in a conservative area.

1. "Marketing Lessons Key Success for Mexican Vasectomy Clinics," *Social Marketing Forum*, No. 17, Fall 1989, p. 9.

Progestin-Only Pill and Breastfeeding

Women who rely on a type of oral contraceptive containing only a progestin while they are lactating appear to breastfeed just as effectively as women using a nonhormonal method.[1] In a study comparing 250 Argentine women using such a pill with 250 women using a nonhormonal method, there were no differences in the level of milk production reported by the women or in the overall growth patterns of the babies, even though the women using the progestin-only pill tended to supplement their baby's diet later than did the other women. The researchers conclude that "it is reasonable to promote progestin-only pills as the formulation of choice for breastfeeding women who wish to use hormonal contraception."

1. M. F. McCann et al., "The Effects of a Progestin-Only Oral Contraceptive (Levonorgestrel 0.03 mg) on Breastfeeding," *Contraception*, 40:635, 1989.

New Male Method Enters Testing Phase

A multinational trial, sponsored by the World Health Organization, of a new male hormonal contraceptive has begun, with about 250 men set to test a birth control drug that is a modified form of testosterone, the male hormone.[1] Preliminary studies showed that 50–60 percent of men who received injections of the drug soon had no sperm in their ejaculate. The current trials will investigate how well the hormone prevents pregnancy, and whether any serious side effects are associated with its use. Researchers hope that testosterone enanthate, as the new drug is known, will be active for up to three months after one injection.

1. "New Male Contraceptive Entering Clinical Trials Worldwide," *Contraceptive Technology Update*, 10:142, 1989.

Nigeria's Next Census

Nearly 30 years after its first (and only) official national census, the Nigerian government is planning to undertake a new one in November 1991.[1] (A preliminary count done in 1973 was rejected by the government then in power.) The information to be derived from the census is vital not just for planning purposes (the current population estimate of 115 million is based mainly on projections from 1963), but also for the apportionment of representatives to the new national legislature scheduled to be reinstituted shortly after the census. Because of the potentially divisive effect of religion and ethnicity in a country like Nigeria, however, the census will ask no questions on such topics. The effort is expected to involve some 300,000 enumerators in at least 200,000 enumeration areas, and results should be available in 1992.

1. A. Haupt, "New Nigerian Census Planned for 1991," *Population Today*, Oct. 1989, p. 8.

Toward Family Planning in the 1990s: A Review and Assessment

In the 1990s, further gains in reproductive health and reductions in population growth will depend on improving family planning and maternal and child health services in the absence of major strategic or technological breakthroughs.

By Alan Keller, Pierre Severyns, Atiqur Khan and Nicholas Dodd

Summary

Expansion of family planning services in the 1990s will require not just additional funding, but different approaches and improved program planning and operation. The United Nations Population Fund (UNFPA) review and assessment concludes that a number of broad strategies are necessary for program success; these include heightening political commitment, generating greater demand for family planning services, increasing the accessibility of services (including involving the private sector more extensively), improving acceptability of services, increasing community participation, and developing adequate personnel and financial bases. Additionally, a number of administrative issues will grow in importance, such as eliminating logistics deficiencies, improving supervision, increasing the efficiency of management information systems, placing greater emphasis on the results of research and evaluation, and improving training.

Introduction

Among all developing countries, contraceptive prevalence rose from around nine percent in the early 1960s to approximately 48 percent in 1987; when China is excluded, the latter figure is 35 percent. Given inevitable population growth, simply maintaining current prevalence rates will require that over 90 million additional couples be served by the year 2000; increasing prevalence enough to lower fertility to the medium-variant United Nations population projections for that year would require that family planning services reach an additional 168 million couples.[1]

On the basis of calculations of current expenditures, such growth in prevalence rates would require that family planning outlays in developing countries (in constant dollars) rise from approximately $3 billion today to between $5 billion and $10 billion by 2000. Whether resources of such magnitude can be made available is uncertain. Thus, beginning in the last months of 1987 and continuing through the first quarter of 1989, the United Nations Population Fund (UNFPA), in consultation with experts throughout the world, conducted a review and assessment intended to define the constraints and challenges of and the opportunities for expanding coverage of family planning services in the 1990s and beyond. This article summarizes the main conclusions of that assessment.

Strategic Issues

If family planning services are to be expanded and improved in the years ahead, administrators will face a number of strategic problems, and whatever success they have in solving them will be an important determinant of the ultimate size of the world's population and of the quality of life in developing countries. Close observation suggests that successful family planning programs (such as those in China, Colombia, Indonesia, Mexico, the Republic of Korea and Thailand) have most—although not necessarily all—of the following characteristics: effective political support; widespread, easily accessible services; multiple public and private delivery systems; a broad choice of contraceptive methods; personnel systems that ensure reasonably adequate and motivated labor forces; sound strategies for financing program activities; relatively strong information, education and communication efforts; adequate logistics systems; strategic planning and flexibility; effective supervisory systems; and well-functioning management information systems and research and evaluation mechanisms.

An examination of the impact of some of these factors has shown that a number of them (grouped under such headings as "policy-making and stage-setting," "service provision" and "record-keeping and evaluation") appear to be directly related to contraceptive prevalence.[2] Yet a large gap exists between recognition of the apparent importance of these components and their degree of development in specific national contexts; in most developing countries, there is considerable room for improvement. In countries that have had relative success, as well as in those that have not, several challenges to program managers seem predictable, and if they are not dealt with effectively, each may slow the progress of family planning. In extreme cases, an inability to develop appropriate responses may lead to stagnation or even to declines in prevalence rates. Below, we summarize some of the most important strategic issues, along with what has been learned about responses to them.

• *Political commitment* is a prerequisite for program success, in that it "produces" the necessary human and economic resources and legitimizes required actions. Hence, in countries where real political commitment to family planning has never existed or in those where it is waning, the task of family planning proponents is to generate commitment at all governmental levels. A number of steps have been found to be effective in this task, such as conducting and disseminating the results of studies analyzing the consequences for maternal and child health and for socioeconomic development of unregulated fertility or high rates of population growth. Cost-benefit analyses and modeling of future socioeconomic trends have also proved effective in convincing political leaders.

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Finally, efforts to persuade grass-roots organizations, such as women's groups and labor unions, of the importance of family planning for health and social development have in some cases resulted in these organizations' involvement in pressing for more and better services.

• *Generation of demand* is necessary in many developing countries, including the majority of those in the Middle East and Sub-Saharan Africa. Spontaneous demand for family planning services is relatively low in these regions, in part because of a lack of knowledge of both the benefits of family planning and the sources of contraceptive services, and in part because of inaccurate perceptions of the efficacy and safety of various contraceptive methods. Even in countries where demand is substantial, a lack of knowledge regarding correct method use and side effects contributes to method failures and discontinuation. Since information, education and communication programs can be used to produce and disseminate motivational materials designed to correct misperceptions and increase demand for family planning, the design and implementation of such programs, both for the community at large and for specific target groups, are critical. Such programs are also essential if potential users are to make an informed choice about services and specific contraceptive methods.

• *Accessibility to services*, worldwide experience has shown, is necessary if programs are to achieve relatively high contraceptive prevalence and hence contribute significantly to national demographic or health objectives. For example, in countries with relatively successful family planning programs, such as Indonesia and Thailand, there are more than two contraceptive distribution sites per 1,000 married women; in Pakistan, on the other hand, where the family planning program has been less successful, there is one source per 11,000 women, and in Bangladesh there is only about one per 15,000 women. (In Sub-Saharan African countries just beginning to offer family planning services, the ratio is even lower.)

To expand accessibility, program managers must often overcome a variety of pressures. In many developing countries, governmental social services focus disproportionately on certain elite groups—in particular, on the urban working class and the middle class. Such a concentration is typical in the health sector, where the bulk of most budgets goes to supporting curative services in urban hospitals and health centers. Providing data that show the negative impact of such resource-distribution schemes on health, as well as their low cost-effectiveness, may help politicians change priorities within the health sector.

In some countries, pressure to retain physician control has slowed progress in making family planning services widely available, although this is, to a certain extent, a phenomenon of the past. Numerous studies demonstrate that trained nonphysicians can safely and effectively provide barrier and hormonal contraceptives, as well as insert IUDs, for the great majority of couples. Thus, wherever a shortage of physicians, a concentration of doctors in urban areas or a preoccupation with other physician tasks limits people's access to needed services, programs should move towards delegating responsibility for service delivery to appropriately trained nonphysicians. At the same time, programs should rely on doctors to handle serious side effects or to offer methods that can only be safely provided by physicians.

Historically, many programs began by making services available in freestanding, generally urban clinics that were readily accessible to only limited segments of the population. In parts of Africa, access is even further restricted because a significant portion of the clinical infrastructure is operated by religious groups opposed to family planning. In most contexts, therefore, given the limited infrastructure and the difficulty sometimes experienced in obtaining family planning services at multipurpose facilities, clinics should be supplemented by the activities of outreach workers and by other sources.

Many successful programs have developed "multisource" strategies that supplement clinic services with postpartum family planning services, community-based distribution networks and private, for-profit and social marketing approaches to further government goals. Such approaches have significantly increased prevalence, especially in rural areas and, on a provisional basis, in countries otherwise considered resistant to family planning, such as Bangladesh, Haiti, Kenya and Zaire.

The private sector has proved to be a vital adjunct to government efforts to extend contraceptive services. Nongovernmental organizations (such as family planning associations), private pharmacies, physicians and social marketing programs are responsible for half or more of contraceptive use in many countries, especially Brazil, Colombia and Mexico.[3] The key element in the use of either social or regular commercial marketing to extend contraceptive availability is the tremendous number and geographic dispersion of potential outlets. In Bangladesh, for example, more than 100,000 retail outlets could participate in contraceptive delivery, as could the ubiquitous *sarisari* stores (small variety shops) in the Philippines. Other efforts to engage the private sector in family planning have entailed paying special fees to private physicians for the delivery of services (as in the Republic of Korea), creating communal pharmacies and establishing service delivery at the workplace with economic backing from businesses or unions (as has been done in Indonesia and Turkey).

However, increasing contraceptive availability is not simply a matter of increasing the number of service sites, but also of providing an extensive variety of contraceptive options. Research indicates that, at least under conditions of low-to-moderate prevalence, the provision of additional contraceptive alternatives increases use rates.[4] Nonetheless, in India, Nepal, several South Pacific nations and numerous African countries, program progress has been restrained by limited contraceptive choice.

The strategic answer to the question about the optimal method-mix is not simply to make all methods extensively available, however. Where administrative capacities are not highly developed, concentrating on making a few methods widely accessible may yield better results. Indonesia is a good example of a successful program that has concentrated on offering relatively few methods. Once such success has been achieved, however, other methods must eventually be made available so that contraceptive prevalence does not plateau at an undesirably low level. Even a relatively successful program like Indonesia's might achieve more if contraceptive sterilization were more widely available.

Finally, making a wide range of methods available should not be taken to mean offering many variants of each method. Programmatic evidence suggests that providing too many types of oral or injectable contraceptives leads to complicated logistics, shortages, frequent changes in prescriptions, confusion among providers and clients and eventual discontinuation of use.[5]

• *Acceptability of services* is a concept that grows out of the recognition that family planning services should be adapted as much as possible to local customs and preferences. This has in turn led to a wealth of research on just what the "user perspec-

tive" may be.[6] Concrete actions toward improving the acceptability of family planning services have been taken in some of the more successful programs, but are still lacking in many. These include selecting types of service agents and a contraceptive mix that accord with cultural patterns; respecting women's privacy, modesty and desire for anonymity; aligning the hours in which services are offered with community schedules; reducing waiting times; removing impediments to staff-client communication; and revamping educational materials so that they are more responsive to the concerns of clients and more easily understood.

Contributing to acceptability is a collection of factors loosely grouped under the rubric "quality of care." Program managers face an important challenge in improving quality by ensuring that, for example, personnel adhere to service norms and standard procedures, are alert to contraindications and side effects and are willing to counsel clients adequately on contraceptive alternatives. Raising the quality of family planning care should help improve both the acceptance of services and the continuation of contraceptive use. Other mechanisms for improving quality are acquiring and distributing adequate equipment and supplies, promptly and widely disseminating to all staff members the most up-to-date information on the contraceptive methods employed in the program, updating norms and procedures and conducting refresher training for service personnel.

• *Community participation* in family planning programs is an issue that has received considerable attention. The premise is that if the community is directly involved, services are more likely to be offered in accordance with local preferences and thus are likely to be more widely accepted. Community participation, as it is used here, refers to a broad spectrum of activities, ranging from encouraging local organizations and individuals to both become involved in service delivery and take on a greater proportion of service costs under the direction of the government or nongovernmental organizations to empowering the community by making it responsible for designing and operating services.

In practice, community participation is often difficult to implement. On the one hand, how much responsibility communities want or will accept is often unclear. Community members may resist the idea of managing services themselves, perceiving this arrangement as inferior to what is provided to more privileged groups. They may also object to bearing financial responsibility for services if they perceive that more privileged groups do not. On the other side, governments frequently feel threatened by the empowerment of any group outside official structures. Additionally, there are no universal formulas for determining who should be involved at the local level. In communities in which factions are important, the wrong choice can lead to reduced access to services for "out" groups, whereas the choice of politically well-connected individuals sometimes leaves the majority mistrustful of the service. On the other hand, selecting individuals who are not politically well-connected or attempting to develop community organizations outside official ones may create government resistance.[7]

Solving these problems requires analysis of existing community organizations and human resources in search of the elements that are willing to participate in a sustained, honest manner and that have widespread prestige and acceptability. Investigation can help determine just what responsibilities the community is willing to carry out over short and extended periods. Involvement of the private sector and of social marketing can sometimes circumvent political suspicions. Finally, operations research is needed on economically sound incentive systems to motivate community members such as village health workers (who often are expected to devote considerable time to the program) to continue in their jobs without placing an unacceptable financial burden on the program.

• *User incentives and disincentives* have been introduced in some countries to motivate men and women to practice family planning. Whether they are aimed at reducing or increasing fertility, whether they are oriented to individuals, couples or communities, and whether they are administered by governments or independent, nongovernmental organizations, incentives and disincentives have often been controversial. However, they have also been recognized for some years as playing, at least potentially, an important role in family planning programs.

All incentives and disincentives characteristically consist of either a reward or a penalty tied to some kind of fertility behavior. Incentives may be in cash or may encompass gifts, clothing or food; maternity leave, benefits or allowances; low-interest loans and reduced taxation; priority for housing, education or health services; employment opportunities for women and future employment opportunities for children; land-development schemes and eligibility for participation in income-generating activities; social security benefits and old-age pensions; and special awards, ranging from lottery tickets to certificates.

Both relatively small and large payments have been used as incentives. The small-payment approach is based on the assumption that potential clients will be attracted by offers of immediate compensation for lost wages, the cost of transportation and other costs incurred in accepting a family planning method; the incentive is usually a one-time cash payment. The large-incentive approach assumes that couples desire numerous children, especially sons, for social and economic reasons, and that only substantial economic incentives—such as periodic payments for not having additional births; special attention, including free medical care and admission of children to better schools; social security schemes; higher priority in housing or loan applications; and savings bonds—can change their desired family size.

Community incentives are based on the assumption that entire villages can be motivated to participate in family planning programs linked to visible improvement in the quality of life. Typically, communities are rewarded for raising contraceptive prevalence rates above a certain base level or for reducing fertility rates in accordance with a predetermined formula. Rewards are often in the form of a revolving capital fund from which villagers may borrow to finance income-generating activities.

Although offers of incentives and disincentives are becoming more common, they are not widespread, tending to be most prevalent in Asian countries with a relatively sophisticated infrastructure and a long history of concern over population growth. However, even in Asia, countries without incentive or disincentive programs outnumber those with them. Despite several decades of experience with diverse incentive and disincentive schemes, there is not enough information available to assess objectively the impact of such programs on long-term contraceptive-use patterns and fertility behavior.

Nonetheless, certain factors may indeed improve the effectiveness of incentive and disincentive programs. Such programs must be politically and culturally acceptable and financially feasible, they should offer a combination of several incentives or disincentives and their design should be simple. Adequate supervisory, recording and reporting systems are needed if

program officials are to identify problems and monitor the progress of the program, and quantitative analysis should be supplemented by investigation of qualitative aspects, such as client satisfaction and the effects of incentives on the quality of life. In addition, the recurrent financial burden of incentives should be carefully assessed beforehand; once such a program is begun, it may be difficult to withdraw without having negative effects on the family planning program as a whole. The ethical and human rights issues raised by incentives and disincentives are extremely complex; any assessment of them must take into account the social and cultural contexts within which they operate. Ethical issues may best be addressed by maintaining a dialogue between policymakers and the community, so that a consensus can be reached and maintained.

• *Development of an adequate personnel base* is a factor often cited as crucial for the success of a family planning program. It is vital to attract and retain competent and motivated service and managerial personnel at all levels of the program. The challenge of staffing programs with such individuals is complicated in countries where a lack of political support results in the best available talent being assigned to other governmental sectors, where public or private social service funds cannot compete with the rewards of private, for-profit employment (such as in Egypt, Pakistan, the Philippines and Sri Lanka), or where trained workers are very scarce.

Upper management, middle management and clinic-level medical and paramedical personnel are often difficult either to attract or retain. In addition, programs that have advanced to the stage at which community outreach workers are required to motivate the population and to provide service outside the clinics are often faced with the task of "creating" this entire cadre, not infrequently at a time when resources to pay such workers are lacking. The progress of some of these types of programs appears to have been retarded because the personnel selected were in some way inappropriate. For example, sometimes men have served as agents in societies in which women are reluctant to be examined by or to discuss intimate topics with the opposite sex; at times, urban residents have been assigned to work in rural areas or young people (or relatives of political figures) with no credibility have been selected. When individual programs have compared the efficacy of different types of workers, the most effective agents have proved to be those with a background similar to the potential clients, but with some claim to expertise through training and personal experience (typically, married women who have children and who use contraceptives themselves).

Some programs have tried to overcome the shortage and expense of physicians by delegating authority for some forms of service to adequately trained, more readily available and less expensive types of personnel. For example, in Thailand and Turkey, properly trained paramedical personnel have been shown to be able to prescribe most methods, as well as to insert IUDs and follow up with users.

Poor motivation of service delivery and outreach personnel and a lack of a service orientation—two other basic problems—have in some cases been ameliorated through in-service and basic training. If the problem stems largely from the staff's lack of understanding of the health justifications for family planning, more training should help, although there is little evidence to back this assertion. If the problem is one of low salaries, some improvement might be expected from salary increases. Once again, however, there is insufficient evidence on this point, and program managers rarely have much flexibility in this area. Finally, programmatic evidence also indicates that motivation is improved by a supportive supervision system.

Several programs in different regions have attempted to win the loyalty and dedication of fieldworkers and medical and paramedical personnel through special incentive payments to those who deliver family planning services on either a piecework or salary supplement basis. Although in some cases this practice seems to have led to increased productivity, it has also resulted in the refusal of personnel to continue services if special payments must be reduced or eliminated. In addition, other workers have resisted providing such services without receiving similar payments, which may severely limit the service network if the program is unable to offer such incentives on a wide scale. Furthermore, linking payments to the provision of one or only a few contraceptive methods raises the possibility that a worker may try to influence a client to accept the method or methods bearing the premium, thereby infringing on the client's right to free and informed choice. Thus, whenever special incentives for service providers are a part of the program, significant efforts are required to ensure that the payments are provided system-wide and to guarantee that clients' basic rights are respected.

• *Development of an adequate financial base* is essential, since almost all family planning programs suffer to a greater or lesser degree from a shortage of financial resources. To achieve the aims of the program, it is usually necessary to combat resource constraints simultaneously on two fronts: by generating (or in some cases rekindling) political commitment, and by being constantly on the alert for the most cost-effective ways to use resources.

In an ideal strategy, family planning services should be made as widely available as possible through multiple modes of service delivery and should provide as broad a range of contraceptive options as possible. Where financial resources permit, this strategy, already adopted by a significant number of the more prosperous developing countries, would bring about the highest possible contraceptive prevalence in the least time.

Where resources cannot be stretched to pursue all major modes of service delivery, however, difficult strategic choices must be made. Although it is important to determine which modes of delivery provide the most contraceptive protection with available resources, relatively little information on this subject exists. One recent study of 63 projects in 10 countries suggests that contraceptive social marketing and voluntary sterilization are more cost-effective than community-based distribution or full-service clinic programs, but the research covered only family planning services, and the results might have been different had the study included programs that offer maternal and child health services along with family planning.[8]

An increasingly important question is the extent to which public-sector costs can be abated. For example, in countries where programs are already under way, shifting some portion of the burden of public services either to the regular commercial sector or to a social marketing program may represent a sound option, especially where the majority of the public is spontaneously demanding family planning; a number of Latin American and Asian programs may have already reached this stage. Under such an arrangement, public resources can then be focused on serving the last remaining unconvinced or underserved groups in the population as well as those too poor to purchase the service in the private sector.

Where programs are just beginning, developing a private-sector or a social marketing alternative before (or perhaps instead of) developing the public-sector services might be useful. However, fur-

ther examination of available data is urgently needed to guide decisions about how to balance the resources devoted to the public and private sectors and to clinic distribution with those to community-based or commercial distribution systems. Most experience with social marketing has been in countries where long-standing public-sector (and sometimes commercial) efforts had already accomplished much in terms of informing the public and generating demand. It remains to be seen how well social marketing will fare in environments where this initial groundbreaking has not been conducted. Additionally, social marketing programs are not responsible for the majority of contraceptive prevalence in any country; rather, they simply add another layer of users to those generated by other sources of services. The prevalence level that can be generated by social marketing alone is thus unknown.

Whether programs are fortunate enough to be able to operate through all modes of service delivery or are obliged to select only a few alternatives, financial constraints normally limit operations. Hence, the search for more cost-effective ways of carrying out basic functions must be continuous. Cost-reduction options identified in some programs include relegating functions to less expensive personnel, charging for services, experimenting with alternatives to government compensation for outreach workers, using more economical modes of transportation and relying on more cost-effective techniques of training and supervision. Finally, programs may opt for "appropriate technology," such as using existing village buildings instead of constructing new ones, employing locally made products (e.g., simple examination tables, safe-birth kits for traditional birth attendants and oral rehydration salts) and depending in most cases on minilaparotomy rather than on laparoscopy for sterilizations.

Administrative Issues

Regardless of the decisions made about broad strategic options, supportive functions such as logistics, supervision, management information systems, research and evaluation, and training must be reinforced in the coming decade if maternal and child health and family planning programs are to have a reasonable chance of success.

• *Logistics* deficiencies (that is, shortages of equipment, drugs and contraceptive supplies) are encountered in many programs and can be documented through progress and supervision reports, along with special checks on conditions at service points. Regardless of how successful a program has been in generating demand, it will lack impact if it cannot maintain a continuous supply line. Thus, one of the principal operational challenges in the coming decade is to establish adequate logistics systems.

Logistics are poor in many countries, largely because of financial constraints on purchasing, inadequate inventory information and requisition systems, ill-defined procedures for buying and shipping, inefficient warehousing practices, lack of transportation and pilferage. Attempted solutions to these problems have included efforts to encourage local production of equipment and supplies and to develop better stock information systems and ordering and warehousing procedures. In some instances, nongovernmental organizations have been placed in charge of government logistics; for example, occasionally, the responsibility for supplying government service points has been turned over to efficiently run private purveyors of such items as over-the-counter medicines or soft drinks.

• *Supervision* at all levels, and especially at the level of service provision, is a recurring problem in family planning programs. It may be too infrequent or perfunctory, contributing to the abandonment of posts by volunteer workers and to demoralization, low productivity and unacceptably low quality of services among salaried personnel. In general, programs that emphasize a well-functioning supervisory system have been more successful than those that have not.[9]

Several factors typically constrain effective supervision. There may be too few supervisors for the number of agents to be supervised (especially in community-based distribution programs), usually as a result of budget problems, and the contact between worker and supervisor may thus be too brief. Geographic dispersion of family planning workers also contributes to inadequate supervision, especially in areas where transportation is a problem. Furthermore, supervisors may not be adequately trained, and as a result "supervision" may be reduced to inventory checks and verification that workers are at their posts. When supervisors lack the power to actually improve working conditions and lack the training to help workers improve their skills, supervision may be perceived as unhelpful, if not punitive. On the other hand, some programs (such as Brazil's) have begun to discover that once service personnel have mastered their basic responsibilities, less frequent supervision will cause no decline in productivity.[10]

Solutions to the problems of supervision include delegating authority to supervisors to resolve typical problems in the working environment, providing special training in supervisory skills (including instruction on how to improve the technical skills of service personnel through on-the-spot education), attempting to develop alternative, more affordable systems for transporting supervisors to the field and identifying the most cost-effective methods of supervision at different program levels.

• *Management information systems* that provide insufficient or inaccurate information on the flow of supplies, on personnel and training and on service statistics represent a significant obstacle to effective management in many family planning programs around the world. Some improvement has been seen in recent years (in Indonesia and Mexico, for example), but many program managers remain hampered by the absence of accurate and timely information, and their decision-making takes place in a vacuum.

In the particular case of service statistics, many programs fail to collect information on the most basic indicators—numbers, types and locations of service points, numbers of new acceptors and numbers of contraceptives distributed. In addition, information may be assembled only after such extensive delays and with so many inaccuracies that it is relatively useless. Management information may also be restricted to the national level, despite its potential value to managers at the province, district and local levels. These types of problems have been observed in any number of developing countries, including the nations of the South Pacific, El Salvador, Liberia, Pakistan, the Philippines and Sierra Leone.

Attempts to improve management information have included efforts to simplify existing systems so that they provide accurate, timely information on a few basic variables; to introduce simplified techniques (such as cluster-sample interviews, using portable data-entry equipment) that rapidly generate information on important indicators such as contraceptive prevalence; and to train management, supervisory and service personnel in the correct production and use of information. Training courses teaching epidemiological approaches that focus on coverage rates, alongside those emphasizing indicators of the volume of activity, have also been valuable.

• *Research and evaluation* have been viewed by some authors as a part of management information, but they deserve greater visibility. Program managers and researchers often lament that the findings of research and evaluation too rarely enter into the decision-making process. Yet, in Thailand, for example, the use of evaluation data in decision-making has been shown to be positively correlated with program success.[11]

Ideally, managers and researchers should jointly design research and evaluation plans appropriate to the program. In their early stages, programs need baseline data on the knowledge, attitudes and practices of the target population, estimates of the need and demand for services and inventories of existing (or potential) service points and available personnel. Additionally, research on innovative approaches—for example, those aimed at adolescents or those employing paramedical personnel—can often provide the evidence to justify making them permanent.

As programs progress, both the quantity and quality of services need to be monitored to determine why approaches succeed or fail. Also helpful is operations research on the cost-effectiveness of options open to managers, such as the contraceptive method-mix, modalities of service delivery, length and type of training, frequency and content of supervision, mix of services to be offered by outreach workers, types of outreach workers to be hired and compensation schemes for village health workers. Clinical trials of experimental contraceptive methods must be conducted, as well as research to smooth the introduction of new methods and to monitor the safety and efficacy of all methods in general use. Finally, it is necessary to conduct periodic assessments of whether health and demographic objectives are being achieved.

• *Training* is a major need for all family planning programs, whatever their stage of development: Medical and paramedical personnel must be given basic training, in-service staff must receive their first exposure to family planning, cadres of village health workers must be developed, already trained workers must receive periodic refresher courses and all staff must be given special training on changes in administrative procedures or on recently introduced contraceptive methods.

Despite considerable progress in a number of countries, the absence or inadequate coverage of relevant material in medical and paramedical schools still imposes a heavy in-service training burden on family planning programs. Additionally, in many countries, because of the large numbers of in-service trainees to be reached, a multitiered, decentralized training strategy is inevitable. Too often, however, greater attention is given to the quality of central-level training than to provincial or district-level training. Key individuals may be sent outside the country for training, with the attendant risk that their current activities will be disrupted and that they may not return. Training may also not be synchronized with the availability of positions, so that trainees may find their newly acquired skills diminished or lost through a lack of opportunity to use them.

Another chronic problem in many programs is the difficulty in convincing senior officials to allow lower level staff to leave their posts to attend training sessions, particularly where medical or paramedical staff are in short supply. Moreover, resistance is often compounded and costs unnecessarily elevated when all members of a cadre are assigned such training, even though only a portion really need it. Whether for reasons of time or budget, many programs opt for courses that are too short to permit adequate transfer of requisite skills and knowledge and overload attendees with general material, some of which is extraneous to their actual responsibilities.

Further efforts are needed to include and improve the family planning content in medical and paramedical curricula; to develop service norms and clear job descriptions for all levels of personnel, and to base training on them; to lobby for sufficient training time; to focus training on those most in need; to conduct research on questions of content and duration of training; and to send selected service personnel abroad for short-term practical training until demand for particular methods increases to a point at which local instruction can be undertaken. Another promising approach for improving training is greater reliance on self-instruction (either written or in audiovisual cassettes), which can be reinforced by relatively short group-training sessions.

Special Challenges

Family planning programs have typically focused, at least during initial stages, on married women, and not infrequently on those of relatively high parity. The needs of other groups have been less thoroughly addressed, and sometimes neglected altogether. In the 1990s, many programs will no doubt identify as high priority these previously marginal groups. In addition, both long-standing and relatively recent health problems—especially the rise of AIDS and other sexually transmitted diseases (STDs)—constitute special challenges for the coming decade.

• *Adolescent reproductive behavior* is an issue with great potential for controversy in most societies. Both for this reason and because the task of delivering services to other, less controversial groups has been so large, the needs of men and women 10–19 years of age have received relatively little priority. During the 1970s and especially the 1980s, though, a number of programs serving older women have progressed to such a degree that adolescents have inevitably emerged as one of the remaining few underserved groups.

Thus far, family planning advocates have responded to the often emotionally charged topic of adolescent reproductive behavior simply by documenting the incidence of pregnancy and its negative impact. Other studies have been directed at adolescent contraceptive knowledge and behavior, with a view to designing appropriate family planning services. The least progress has been made in providing services to adolescents; where this has happened at all, it has tended to be on a modest, experimental scale in a few major urban areas. Although additional research is required to document the seriousness of the problem in countries where the potential for controversy remains high, the main challenge for the 1990s is increasingly that of developing services for teenagers.

Information on aspects of the operation of adolescent programs will be important in the 1990s, but currently such information is only sketchy. It is unclear whether separate services must be established to win the acceptance of young people or whether adolescents can be reached through the same types of services used for the general public; whether programs can use traditional agents to promote services, or if special promotional networks must be established; and whether unified messages and approaches will be adequate for the adolescent population, or if segmentation will be required to reach both the males and the females, the married and the unmarried, those in school and those out of school, and those who are employed and those who are unemployed. Other issues necessary to deal with in the 1990s are how to change traditional attitudes favoring early childbearing and how to overcome the ambivalence (or actual resistance) of service personnel toward the provision of services to adolescents.

• *Male involvement* in family planning is a

concept that has become widely accepted, but there has been little program experience regarding how males can be brought more directly into the family planning process. Most programs have been designed (at the community as well as the clinic level) primarily on a female-to-female basis, for counseling, education and the provision of services and supplies.

Slow progress in involving males may be at least partially explained by a lack of clear understanding of the desired outcome. To date, most efforts have been limited to attempts to win men's support for their spouse's use of contraceptives, by exposing them to information on and arguments about the negative impact of unregulated fertility on the family's health and socioeconomic status. Other educational approaches have emphasized the importance of encouraging responsible male behavior, while still others have promoted vasectomy or condom use. There is only scanty evidence on the efficacy of such efforts—particularly that of gaining male support for female contraception—even in the minority of programs in which they have been undertaken. Many advocates clearly believe that something beyond mere male acquiescence is required for success. To make real progress will require a more specific definition of the desired outcome and more rigorous testing of the strategies for bringing it about.

• *Induced abortion* remains highly controversial, and has become a matter of great concern in developing countries because of the serious threat it poses, under certain conditions, to maternal health. Between 25 and 40 million induced abortions are believed to occur annually in the developing world—approximately one for every 3–5 live births.[12] An estimated 15–20 million of these abortions are performed legally and under relatively safe conditions, whereas 10–20 million occur where abortion is illegal or where hygienic, affordable services are relatively inaccessible. Complications of abortions performed under unsafe conditions may be responsible for anywhere from 10 to 50 percent of maternal deaths in developing countries.[13] In absolute terms, the toll may reach between 100,000 and 150,000 women annually.

Mortality due to induced abortion could be reduced substantially by means of improving health care. In countries where complications of induced abortion account for a large number of maternal deaths, curative health services for treatment of septic and incomplete abortion should be made available. Family planning services can be promoted and expanded so that recourse to abortion is lessened. Finally, in countries where abortion is legally permitted, the recommendation of the 1987 Nairobi Conference on Better Health for Women and Children through Family Planning—that "good quality abortion services should be made easily accessible to all mothers"[14]—should be heeded.

• *STDs and AIDS* have assumed epidemic proportions in many countries, including some with the least resources in manpower, institutions and money to cope with the problem. Therefore, despite the concerns of some administrators about overburdening personnel and diluting their dedication to their primary responsibilities, maternal and child health and family planning programs will increasingly come under pressure to address the accelerating menace of STDs in general, and AIDS in particular. Promotional home visits, clinic educational efforts and family life and sex education programs present natural opportunities to educate the public on prevention of STDs.

Additionally, the provision of condoms and spermicides, increasingly seen as one line of defense against STDs, has been a traditional responsibility of family planning programs, and a role that may be expected to increase, particularly as the campaign against AIDS intensifies. In this context, the roles of the family planning worker may become more complicated: The methods that confer the greatest protection against STDs are not those that are most effective at preventing pregnancy; thus, family planning workers may find that they have to prescribe or provide one method for protection against disease and

Table 1. Developing countries and their contraceptive availability scores, by contraceptive prevalence rate and whether reliance on traditional methods is high or low

Prevalence and reliance on traditional methods	Country	Score	Prevalence and reliance on traditional methods	Country	Score
0–20%	Afghanistan	5	Low	Antigua	u
	Benin	5		Barbados	u
	Burundi	3		Dominica	u
	Cameroon	4		Dominican Rep.	40
	Cote d'Ivoire	5		Ecuador	33
	Ghana	4		El Salvador	46
	Haiti	22		Fiji	35
	Iraq	4		Indonesia	36
	Kenya	12		Morocco	20
	Lesotho	2		St. Kitts-Nevis	u
	Liberia	8		St. Vincent	u
	Mauritania	5		South Africa	u
	Nepal	16		Tunisia	45
	Nigeria	11		Venezuela	19
	Pakistan	16			
	Rwanda	3	**>50%**		
	Senegal	10	High*	Lebanon	27
	Sudan (North)	0		Malaysia	40
	Yemen	5		Mauritius	31
21–35%				Sri Lanka	47
High*	Bangladesh	41		Turkey	22
	Bolivia	2			
	Botswana	17	Low	Brazil	34
Low	Egypt	21		China	58
	Grenada	u		Colombia	52
	Guatemala	30		Costa Rica	34
	Guyana	25		Hong Kong	59
	Honduras	29		Jamaica	45
	India	36		Martinique	u
	Jordan	24		Mexico	45
	Nicaragua	19		Montserrat	u
36–50%				Panama	56
High*	Paraguay	12		Rep. of Korea	59
	Peru	17		Singapore	59
	Philippines	41		Thailand	50
	Zimbabwe	16		Trinidad & Tobago	36

*High reliance on traditional methods is defined as more than 25 percent of all current contraceptive users.

Notes. Availability scores indicate the level of availability (on a scale of 0–60) of male and female sterilization, oral contraceptives, IUDs, barrier methods and legal abortion. Availability data are from 1987. Prevalence data range between 1980 and 1988, although most are from 1984–1985. u=unavailable.

Sources. **Contraceptive prevalence**—see reference 2. **Availability scores**—"Access to Birth Control," 1987 (see reference 15).

a second for family planning. Given the importance of the condom in disease prevention, workers may have to deal increasingly with males, in addition to their usual largely female clientele.

Finally, although family planning affords opportunities for combating STDs, it also lends itself to the inadvertent spread of disease. All body-invasive procedures in family planning, including IUD insertion, sterilization, injections and pelvic examinations, have the potential for spreading STDs—and particularly the AIDS virus—when carried out under unsanitary conditions. Thus, managers will be faced with the task of preparing staff both for adding STDs and AIDS to existing education and counseling programs and for improving hygienic conditions in the provision of services. Doubtless, too, procurement and distribution of increased quantities of condoms and spermicides will require greater financial outlays and better logistics systems than had previously been expected.

Country-Specific Strategies

To some extent, the strategic, administrative and special challenges described above will confront program managers in all developing countries in the coming decade. Nevertheless, the data in Table 1 (page 133) suggest that based on their patterns of contraceptive use and availability, developing countries can be grouped into at least four categories, with each warranting a somewhat different strategic emphasis.

The first group, where contraceptive prevalence is less than 20 percent, is composed of the great majority of African nations for which data are available; in addition, it is likely that most of those countries for which actual prevalence data are not available (such as Afghanistan, Haiti, Iraq, Nepal, Pakistan and Yemen) also fall into this group. With several exceptions (Ghana, Haiti, Kenya, Nepal, Pakistan and the Sudan), the nations in this group are at the incipient stage of program development. All countries in this group are considered "weak" or "very weak" in terms of overall family planning program effort and contraceptive availability.*[15]

For this group of countries, with few exceptions, first priority should be given to activating existing clinical, medical and paramedical networks to serve as bases for service delivery, referrals, and training and supervision for incipient outreach, community-based or commercial systems of service delivery. Especially in Africa, shortages of staff for such functions make training of key national, provincial and district-level personnel in basic management a crucial activity. Another high priority is educating instructors to train personnel already part of the health infrastructure in providing family planning services. Given the limited geographic coverage of clinical networks and their restricted capacity for delivery of any type of health service, further expansion will be required in most cases to achieve significant health or demographic impacts. In these countries, however, resource constraints make it almost inevitable that programs will face difficult choices on the additional modes of service delivery to be employed and the degree to which they should be emphasized. Analysis of the cost-effectiveness of local options will be critical if the impact of family planning programs is to be maximized with the limited resources likely to be available.

A second group, where contraceptive prevalence is between 20 and 35 percent, is made up of at least 11 nations, including some—Bangladesh, Egypt and India—with large populations. These countries may be further subdivided by the degree to which their people rely on traditional and less effective methods. (High reliance is arbitrarily defined as the use of such methods by more than 25 percent of current users.) With the exception of Bolivia, the availability scores of the countries in this entire group exceed those of all countries in the first group except Haiti.

On the basis of their availability scores, all members of this second group, along with Ghana, Haiti, Kenya, Nepal and Pakistan, appear to have a better foundation of basic medical and managerial support resources than those of the rest of the first group. Thus, the emphasis here should be placed on a major, general expansion of the availability of services, through the extension not only of clinical networks but also of community-based, commercial marketing and other private networks, in accordance with the probable cost-effectiveness of local options and of the availability of funds. Implementation issues relating to broad-scale training, logistics, information systems and supervision will be of primary importance.

Each of the two groups contains some countries with long-standing programs that have been relatively unsuccessful to date. Most of these overemphasize one method (such as condoms in Pakistan and sterilization in India and Nepal), offer relatively low-quality services and have poorly motivated personnel and bad logistics; in addition, despite considerable efforts, family planning services in these countries remain persistently inaccessible. Several of these nations also have large subpopulations whose cultures are viewed as unreceptive to family planning. Since pilot projects have shown that high-quality services, sensitively offered, can win acceptance among such populations, more should probably be done to make services culturally acceptable and attractive to individual clients, as well as to inform and motivate the population.

In most of the countries where contraceptive prevalence is between 36 and 50 percent, services are relatively accessible (in the Dominican Republic, El Salvador, Fiji, Indonesia, the Philippines and Tunisia, for example). However, availability is still below the levels found in the programs with the highest prevalence rates. Thus, a somewhat more modest extension of services than in the second group seems called for, except in countries such as Paraguay, Peru and Zimbabwe, where, because of limited accessibility, a rather highly motivated population is using relatively ineffective methods. In this subgroup, a major expansion is indicated. Otherwise, most initiatives should be focused on underserved groups such as adolescents, remote rural populations and pockets of marginal urban dwellers. Some additional extension of the service network will be required as the numbers of reproductive-age couples grow. In several of these countries, although service points are relatively accessible geographically, poor logistics, poor service, inferior care and inconvenient hours discourage women from using contraceptives, so improving the quality of care should be a major concern.

Finally, there is a group of nations where prevalence is over 50 percent. In these countries, multiple delivery channels have generally been well developed. (One exception is Brazil, where the public sector has only recently begun providing family planning services on a national basis through the health system.) Neither the development of new delivery systems nor a broad expansion of existing ones would seem to be a priority in these nations, except perhaps in countries such as Turkey, where there is very high reliance on traditional methods and relatively low accessibility to services.

A number of countries in this group and

*Availability scores are based on the replies of family planning and population experts who were asked to describe the availability of male and female sterilization, oral contraceptives, IUDs, barrier methods and induced abortion. The maximum availability score possible was 60. For more information on the scoring, see "Access to Birth Control," 1987, reference 17.

several where prevalence is between 36 and 50 percent are candidates for the gradual "privatization" of services, leaving governments to reach the last underserved populations and those too economically disadvantaged to afford private-sector services. Regardless of whether privatization takes place, comparatively little emphasis on "demand creation" would seem to be required in the majority of these countries. At the same time, however, in all remaining public-sector and private-sector programs and in any new private-sector ones, considerable attention could profitably be directed to improving the quality of services, especially in screening for contraindications, monitoring for side effects, providing a variety of contraceptive alternatives and ensuring that the methods used are appropriate to the client's particular stage in the reproductive cycle.

Conclusions

Further improvements in maternal and child health and decreases in population growth rates in developing countries will depend on the extent to which the coverage and quality of maternal and child health services in general, and family planning services in particular, can be improved. Such improvements must be achieved largely with existing strategies and technology; no major breakthroughs are foreseen for the coming decade.

The resources needed to support family planning services must increase substantially if contraceptive prevalence is to rise as much as is needed. In addition, political commitment to family planning, which has waned in some countries and regions, must be rekindled. The selection of contraceptive methods available in most programs needs to be expanded: Health authorities and service providers must be convinced to add alternatives to the repertoire of most programs, and to introduce new methods in ways that do not disturb current program efficiency. Information, education and communication activities will have to be strengthened as well, especially in countries where large segments of the population remain uninformed or unconvinced about the benefits of family planning.

Considerable effort will have to be devoted to increasing the availability of family planning services, including the wider use of community-based distribution and social marketing programs. A related issue is privatization—encouraging the private sector to assume a greater share of the responsibility for the provision of family planning services. The private sector will doubtless play an important role in the 1990s. In countries where knowledge of and demand for contraceptives is high, governments should consider delegating a considerable proportion of responsibility to the private sector, while focusing government resources on underserved subgroups. Any phase-out of government services will have to be carefully planned, however, so that availability does not fall.

With the possibility that funding for population activities will be less than is required in the next decade, there will be a greater need in the 1990s for coordination between assistance agencies, as well as for changes in emphasis. Up until now, external agencies have not linked assistance with program effectiveness; in fact, the more successful programs have been expected to assume ever greater self-sufficiency, while the weaker programs have been targeted for greater support. If resources fall short of what is needed in the 1990s, funding agencies might consider withholding support from programs that have proved chronically unwilling to assign a high priority to family planning or that have used resources in less cost-effective ways, and instead channel resources to the more committed and efficient programs.

The 1990s will certainly see a need for improvements in the acceptability and quality of the family planning services. Program managers will have to identify the particular concerns of target populations and restructure the information content of publications and counseling accordingly, to offer a range of methods that is culturally appropriate and sufficient for the client population's needs, to improve the quality of counseling and service delivery, to reduce waiting time and to improve communication between family planning personnel and clients.

Finally, women have constituted an underused resource in primary health and family planning programs. Rather than being seen simply as the passive beneficiaries of services or as suitable only for the lower level responsibilities in a program, women must become the designers and managers of family planning programs in the developing world. Despite substantial evidence that women can be effective agents of change in the community, policymakers and program managers have often failed to take advantage of the contributions women can make in enhancing the acceptability and quality of maternal and child health and family planning services.

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Resumen

La expansión de los servicios de planificación familiar en la década de los 90 demandará no sólo mayor financiamiento sino también distintos enfoques y mejor planificación y funcionamiento de los programas. El análisis y evaluación llevado a cabo por el Fondo de las Naciones Unidas para Población (FNUAP) llega a la conclusión de que se necesitan un número de estrategias comprensivas para el éxito de los programas en el futuro. Estas estrategias incluyen fortalecer el compromiso político,

(Continued on page 159)

Reproductive Risks and Intentions In Six Countries in Sub-Saharan Africa

In Senegal, 56 percent of women expressed the intention to limit or space births, while among the other five countries this proportion ranged from 71 to 88 percent. The large majority of these women expressed the desire to space.

By Scott R. Radloff, Barbara H. Seligman, Judith R. Seltzer and Richard M. Cornelius

Summary

An analysis of Demographic and Health Survey (DHS) data from six Sub-Saharan countries found that reproductive risk factors (age, parity and interval since last birth) were highly correlated with women's intentions to limit births. Women who had had four or more live births were as much as 79 percent more likely than lower parity women to express a desire to have no more children. Women who were educated, those who were 35 or older, those who had some awareness of family planning methods and those who had a living male child were also more likely to want to limit their births.

In Zimbabwe and Botswana, a number of factors were also associated with the desire to delay the next birth. Women who had had a child within the two years preceding the survey wanted to delay their next birth 13 months longer than those who had not given birth recently, and women who had a living male child wanted to wait longer (by seven and nine months, respectively) than those without a living son. In Zimbabwe, women with at least some secondary education wanted to delay their next birth nearly seven months longer than those with less education, and in Botswana, women with at least some primary education wanted to wait eight months longer than women with no education. Women who knew two or more family planning methods without prompting wanted to wait seven months (Zimbabwe) and 11 months (Botswana) longer than those who knew fewer than two.

Introduction

Although population growth and family planning have been sensitive issues in the countries collectively known as Sub-Saharan Africa,[1] notable changes have occurred at both the policy and the individual level over the last 15 years.* In 1974, only three of these countries had national policies aimed at expanding family planning services and reducing high levels of fertility. Today, such policies have been enacted in six countries, have been drafted but not yet officially approved in five, and are being drafted in 12 more.[2] Further, a United Nations survey reveals that the governments of 39 out of 45 African countries now support family planning for health reasons and 27 of these 39 also support family planning for demographic reasons.[3]

Changes on the individual level have been more difficult to document because of the relative dearth of demographic data for Africa. However, such data have increasingly become available through World Fertility Surveys (WFS), Contraceptive Prevalence Surveys (CPS) and most recently, Demographic and Health Surveys (DHS). Eleven African countries were surveyed during the first phase of the DHS, and 10–12 more will be included in the second phase. The data derived from these surveys allow us to assess the character, levels and trends of reproductive behavior and intentions.

Table 1 summarizes available data on contraceptive prevalence and reproductive intentions in Sub-Saharan Africa. In most of these countries, fewer than 10 percent of married women of reproductive age are using modern methods of contraception. In Africa as a whole (North and Sub-Saharan Africa), the current level of contraceptive prevalence is about 11 percent, according to United Nations estimates. This compares with estimates of 45 percent in both Asia and Latin America. Important differences can be obscured by these regional estimates, however; for example, prevalence in East Asia is 73 percent, compared with 26 percent in South Asia.[4]

Constraints to increased contraceptive practice are discussed extensively in the literature.[5] Some of these are factors affecting demand for family planning: the high value placed on children; traditional marriage practices, notably payments of bridewealth or bride-price, which link status within the lineage to the number of offspring produced in the marriage; high rates of infant and child mortality; the practice of child fostering, which provides a means of diffusing or redistributing the costs of raising children; and generally low levels of social and economic development. Factors that limit access to services, particularly the lack of national health and family planning programs in many African countries, also inhibit contraceptive use.

Despite low levels of contraceptive prevalence in Africa, there are indications that a transition to higher levels is possible and in some cases is now under way. Small-scale operations research projects have demonstrated that family planning use can be significantly increased, even in nonurban areas, by improving access to family planning information and services.[6] Where such programs have been in place for some time, national levels of prevalence have generally increased. As Table 1 shows, use of modern methods of family planning in Botswana, Kenya and Zimbabwe has increased over the past 4–5 years, from 19 to 32 percent, from 10 to 18 percent, and from 27 to 36 percent, respectively. On the other hand, the use of modern methods in Ghana has decreased slightly over the last decade.

Apart from trends in actual contracep-

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*Sub-Saharan Africa is made up of the 42 countries that lie to the south of the North African states of Morocco, Algeria, Tunisia, Libya and Egypt. Throughout this article, unless otherwise noted, "Africa" refers to Sub-Saharan Africa.

tive use, there are signals that women's childbearing preferences are changing. Women's statements about whether they plan to have more children and, if so, when, are one measure of change, which we refer to as reproductive intentions. Women who say they want no more children are usually classified as "limiters," and those who prefer to delay their next birth two or more years are classified as "delayers." The potential demand for family planning, then, is the sum of these two groups, if we assume that those desiring to delay their next birth for two or more years should practice some form of family planning. Because this measure is defined in terms of time, it has more direct relevance for immediate behavior than other measures of potential demand for family planning, such as ideal family size.

Table 1 presents information on reproductive intentions in African countries for which survey data are available and, for comparative purposes, in selected developing countries in other areas of the world. In most of Africa, as in other regions, potential demand for contraception comprises more than 50 percent of women in union and of reproductive age. The composition of demand, however, varies greatly: In Africa, most of the demand results from a desire to delay future births, while in other regions, the desire to limit is more common. Only in Botswana, where there are 1.3 limiters for every delayer, and in Kenya, where there are two limiters for every delayer, is this pattern reversed. Recent surveys in developing countries in Asia, the Near East and Latin America showed that limiters outnumber (often by far) delayers: Ratios of limiters to delayers in the 10 countries represented in the table ranged from 1.8 to 10.0.

Table 1. Percentage of women aged 15–49 currently in union who were using a modern family planning method, percentage who expressed the intention to limit or delay births and ratio of intended limiters to intended delayers, by country and survey year

Country	Survey year	Using a modern method	Reproductive intention			Limit/ delay ratio
			Delay*	Limit	Total	
Africa						
Benin	1981–1982 (WFS)	1	50	6	56	0.1
Botswana	1988 (DHS)	32	29	38	67	1.3
	1984 (CPS)	19	21	33	54	1.6
Burundi	1987 (DHS)	1	53	24	77	0.5
Côte d'Ivoire	1980–1981 (WFS)	0	35	4	39	0.1
Ghana	1988 (DHS)	5	45	23	68	0.5
	1979–1980 (WFS)	6	48	10	58	0.2
Kenya	1989 (DHS)	18	26	52	78	2.0
	1984† (CPS)	10	38‡	32	70	0.8
Liberia	1986 (DHS)	6	33	17	50	0.5
Mali	1987 (DHS)	1	32	17	49	0.5
Mauritania	1981 (WFS)	0	29	10	39	0.3
Nigeria (Ondo)	1986–1987 (DHS)	4	35	23	58	0.7
Nigeria	1981–1982 (WFS)	1	25	4	29	0.2
Senegal	1986 (DHS)	2	31	19	50	0.6
Senegal (rural)§	1982 (CPS)	0	71	7	78	0.1
Togo	1988 (DHS)	3	45	25	70	0.6
Uganda	1988 (DHS)	3	33	23	55	0.7
Zimbabwe	1988 (DHS)	36	35	33	68	0.9
	1984 (CPS)	27	33	25	58	0.8
Asia & Near East						
Indonesia	1987 (DHS)	44	27	51	78	1.9
Egypt	1988–1989 (DHS)	35	6	60	66	10.0
Sri Lanka	1987 (DHS)	41	18	65	83	3.6
Thailand	1987 (DHS)	64	17	66	83	3.9
Tunisia	1988 (DHS)	40	24	42	66	1.8
Latin America & Caribbean						
Brazil	1986 (DHS)	56	16	64	80	4.0
Colombia	1986 (DHS)	53	15	69	84	4.6
Ecuador	1987 (DHS)	36	19	50	69	2.6
Guatemala	1987 (DHS)	18	26	57	83	2.2
Mexico	1987 (DHS)	45	13	64	77	4.9

*Desire to delay next birth two years or more. †Refers to currently married fecund women 15–49.
‡Desire to delay one year or more. §Refers to currently married women 15–44.

Historically comparable data from demographic surveys were available for only four African countries (Botswana, Ghana, Kenya and Zimbabwe) at the time of this writing. In all four, the demand for limitation of births increased over time, and in three of the four, the ratio of limiters to delayers also increased. Only in Botswana, where both surveys found more limiters than delayers, did this ratio decline slightly. This evidence suggests that the rationale for individual demand may be changing.

The changing character of reproductive intentions—and the extent to which reproductive risk factors are associated with reproductive intentions—has important implications for family planning delivery and information systems. As we noted previously, many African governments support family planning primarily as a maternal and child health intervention. Indeed, the goal of many programs that promote childspacing is to reduce high levels of child and infant mortality. Certain characteristics of reproductive behavior are associated with higher risks of morbidity and mortality for women and children.[7] These higher risk characteristics, based primarily on bivariate studies, include high-parity births (generally more than four), births to younger (generally under 19) and to older (over 34) women and births less than two years apart.

The potential impact of changes in reproductive patterns on maternal and child survival is complex. Available research does not indicate how much of the association between these reproductive risk factors and mortality is actually causal. In addition, the potential impact of changes in reproductive patterns varies for individuals, families and populations. Despite these caveats, a reduction in the number of high-risk births would have a positive impact on maternal and child health throughout the developing world.[8]

For an analysis of potential changes in reproductive patterns associated with high-risk births, we used data from six surveys recently conducted in Africa under the DHS project: Botswana (1988), Burundi (1987), Liberia (1986), Mali (1987), Senegal (1986) and Zimbabwe (1988). The surveys employed standard stratified sampling techniques and survey instruments. The DHS selects a nationally representative sample, generally ranging between 3,000 and 10,000, from all women aged 15–49. We limit this analysis to

Table 2. Percentage distribution of women aged 15–49 currently in union, by country, according to selected background characteristics

Characteristic	Botswana	Burundi	Liberia	Mali	Senegal	Zimbabwe
Education						
None	32.4	82.3	74.3	86.1	86.0	18.1
Primary	48.5	15.5	13.0	12.7	9.5	60.8
Secondary or higher	19.1	2.2	12.7	1.1	4.4	21.1
Residence						
Urban	31.5	3.3	37.4	25.3	32.5	29.6
Rural	68.5	96.7	62.6	74.7	67.5	70.4
Death of child						
0	79.2	57.4	53.0	44.9	51.6	73.3
≥1	21.0	42.6	47.0	55.1	48.4	26.7
Living sons						
0	20.4	22.7	32.1	30.9	28.1	20.9
≥1	79.6	77.3	67.9	69.1	71.9	79.1
Modern methods known*						
0	6.4	51.5	44.0	78.6	48.7	5.3
1–3	15.2	24.4	21.6	18.1	42.9	14.9
4–7	78.4	24.1	34.4	3.3	8.4	79.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

*Includes unprompted and probed knowledge of method. Unprompted knowledge of one method is considered equivalent to probed knowledge of two methods. Knowledge of 1–3 methods requires, at minimum, unprompted knowledge of one method or probed knowledge of two methods.

Notes: In this table and tables 4 and 5, educational categories refer to some schooling at (but not necessarily completion of) that level. Some columns may not add to 100 because of rounding.

Sources: Demographic and Health Surveys for Botswana (1988), Burundi (1987), Liberia (1986), Mali (1987), Senegal (1986) and Zimbabwe (1988).

women who were in a legal or consensual union at the time of the survey.*

The selection of countries was dictated by the availability of DHS data at the time this study was first undertaken. However, these six countries are in many respects representative of the diversity to be found in Africa: Two are located in Sahel West Africa, one in Coastal West Africa, two in Southern Africa and one in Central Africa. Only East Africa is not represented. Two, Zimbabwe and Botswana, have rather advanced national family planning programs and high rates of contraceptive prevalence, three others have very new programs, and one (Mali) has none.

Table 2 summarizes data on selected background characteristics and reproductive experiences of women who participated in these surveys. In all the countries, fewer than one in four women had advanced beyond a primary education; in Burundi, Mali and Senegal, this proportion dropped to less than five percent, with more than 75 percent having no education. Well over half of the women—ranging from 97 percent in Burundi to 63 percent in Liberia—were living in rural areas. Child mortality is high: In Liberia, Senegal and Mali, 47 percent, 48 percent and 55 percent of women, respectively, had experienced the death of at least one child. However, because of high and early fertility, most women—ranging between 68 and 80 percent—had a living male child.

Knowledge of modern methods of contraception varied considerably across the countries surveyed and generally reflected the level of family planning program development. In Botswana and Zimbabwe, between five and seven percent knew no methods and nearly 80 percent knew (without prompting) more than four methods. In Burundi, Liberia and Senegal, where programs are at an earlier stage of development, roughly half of women knew no methods, and in Mali, where there is no national family planning effort, nearly 80 percent of women knew no methods.

Influence of Risks

We begin our analysis of these data by evaluating the association between reproductive risk and intention. Here we assign women to one of three reproductive intention categories: limiter, spacer and nonspacer.† The spacer differs from the delayer classification used in Table 1 in that a woman is described as wanting to space her next birth if the elapsed time since her last birth plus her intended waiting period (from date of interview to next birth) exceeded 24 months. This definition more closely corresponds to the birth interval associated with lower reproductive risk.

Our central question is a programmatic one: Are women who face greater risks associated with childbearing more or less likely to express reproductive intentions that would lead to risk-reducing behavior? We hypothesize that reproductive risk is an important correlate of reproductive intention; that women who are not at risk are more likely than women at risk to want their next birth soon; that women who are very young or have had a recent birth are more likely than those who are older or have not had a recent birth to want to space their next birth, and that women who are older or who are at high parity are more likely than those who are young or at low parity to want no more births.

The analysis presented here does not explore the reasons behind such an association. Earlier studies of fertility preferences using WFS data suggest that demographic factors rather than health risk factors are key in motivating reproductive preferences.[9] In particular, these studies found that the underlying factor in the desire to limit births was the achievement of the desired number of children rather than the increased health risks of high-parity births. However, such an in-depth analysis of DHS data has yet to be undertaken. Further research is required to better understand the relationship between reproductive risk and intentions and to examine the ways in which intentions translate into behavior.

The reproductive intentions of women according to category of reproductive risk are shown by country in Table 3. As the table demonstrates, the proportion of women who fell into one or more high-risk categories ranged between 74 and 82 percent. Between 54 and 59 percent of the women surveyed were older than 34, had had at least four children or were both older and at high parity.

There was a fair amount of association between risk category and intention. This was especially true among women who were subject to spacing risks—those who were very young, those who had had a recent birth and those who were exposed to both risks: More than 50 percent in each country expressed a desire to space their next birth. In Burundi, 88 percent of these women wished to wait at least two years until their next birth; in the other countries, however, the association was weaker, ranging from 70 percent in Zimbabwe to 52 percent in Senegal. Women aged 18 or

*In the remainder of this article, "women" refers to all women in a consensual or legal union.

†For pregnant women, questions about reproductive intentions referred to their next pregnancy.

Table 3. Percentage of all women; and percentage distribution of women, by reproductive intentions; all according to country and reproductive risk factors

Country and risk factor	All women	Reproductive intention			
		Want birth in < 2 yrs.	Want birth in ≥ 2 yrs.	Want no more births	Total
BOTSWANA					
Total	**100.0**	**12.3**	**55.0**	**32.7**	**100.0**
No risk	25.6	18.5	67.3	14.2	100.0
High risk	74.4	10.1	50.8	39.0	100.0
Spacing risks	16.3	23.7	58.6	17.6	100.0
Age ≤18	0.9	86.7	6.7	6.7	100.0
Birth interval <15 mos.	14.8	19.8	61.9	18.3	100.0
Age ≤18 and birth interval <15 mos.	0.6	27.3	54.5	18.2	100.0
Limiting risks	58.1	6.3	48.6	45.0	100.0
Age 35–49	7.0	8.3	65.8	25.8	100.0
≥4 live births	22.2	8.4	51.1	40.5	100.0
Age 35–49 and ≥4 births	28.9	4.3	42.6	53.1	100.0
BURUNDI					
Total	**100.0**	**17.2**	**59.3**	**23.5**	**100.0**
No risk	18.4	45.2	48.1	6.7	100.0
High risk	81.6	10.9	61.8	27.3	100.0
Spacing risks	23.5	7.7	87.9	4.5	100.0
Age ≤18	0.4	100.0	0.0	0.0	100.0
Birth interval <15 mos.	22.8	5.8	89.6	4.6	100.0
Age ≤18 and birth interval <15 mos.	0.3	14.3	85.7	0.0	100.0
Limiting risks	58.1	12.2	51.2	36.6	100.0
Age 35–49	3.7	38.8	49.0	12.2	100.0
≥4 live births	24.8	9.7	66.8	23.6	100.0
Age 35–49 and ≥4 births	29.2	11.0	38.5	50.5	100.0
LIBERIA					
Total	**100.0**	**29.5**	**53.4**	**17.1**	**100.0**
No risk	19.4	34.7	61.9	3.4	100.0
High risk	80.6	28.3	51.3	20.4	100.0
Spacing risks	26.4	43.6	52.6	3.8	100.0
Age ≤18	4.1	84.1	15.9	0.0	100.0
Birth interval <15 mos.	18.8	34.9	60.2	4.8	100.0
Age ≤18 and birth interval <15 mos.	3.5	42.7	54.8	2.4	100.0
Limiting risks	54.3	20.9	50.6	28.5	100.0
Age 35–49	8.0	26.2	63.5	10.3	100.0
≥4 live births	22.9	24.8	53.7	21.6	100.0
Age 35–49 and ≥4 births	23.4	15.4	43.2	41.5	100.0
MALI					
Total	**100.0**	**21.5**	**62.2**	**16.2**	**100.0**
No risk	18.0	27.2	70.2	2.6	100.0
High risk	82.0	20.3	60.5	19.2	100.0
Spacing risks	23.4	40.3	56.3	3.4	100.0
Age ≤18	5.9	74.6	23.2	2.3	100.0
Birth interval <15 mos.	13.7	28.4	67.0	4.6	100.0
Age ≤18 and birth interval <15 mos.	3.8	30.4	68.7	0.9	100.0
Limiting risks	58.6	12.3	62.2	25.5	100.0
Age 35–49	5.8	15.5	58.0	26.4	100.0
≥4 live births	25.3	15.1	73.6	11.3	100.0
Age 35–49 and ≥4 births	27.5	9.0	52.7	38.4	100.0
SENEGAL					
Total	**100.0**	**43.8**	**37.2**	**18.9**	**100.0**
No risk	18.6	69.0	29.0	2.1	100.0
High risk	81.4	38.1	39.1	22.8	100.0
Spacing risks	26.7	45.5	51.8	2.7	100.0
Age ≤18	5.6	92.0	7.0	1.1	100.0
Birth interval <15 mos.	17.2	31.8	64.8	3.5	100.0
Age ≤18 and birth interval <15 mos.	4.0	39.8	58.6	1.5	100.0
Limiting risks	54.7	34.5	32.8	32.7	100.0
Age 35–49	4.0	69.1	11.8	19.1	100.0
≥4 live births	25.8	35.4	47.1	17.5	100.0
Age 35–49 and ≥4 births	24.9	28.0	21.4	50.7	100.0
ZIMBABWE					
Total	**100.0**	**11.7**	**55.6**	**32.8**	**100.0**
No risk	19.5	19.4	70.3	10.3	100.0
High risk	80.5	9.8	52.0	38.2	100.0
Spacing risks	23.5	20.3	69.6	10.1	100.0
Age ≤18	2.5	82.1	13.4	4.5	100.0
Birth interval <15 mos.	19.1	12.1	76.0	11.9	100.0
Age ≤18 and birth interval <15 mos.	1.9	20.0	80.0	0.0	100.0
Limiting risks	56.9	5.5	44.7	49.8	100.0
Age 35–49	5.0	9.1	56.8	34.1	100.0
≥4 live births	23.3	6.5	57.2	36.3	100.0
Age 35–49 and ≥4 births	28.5	4.1	32.4	63.5	100.0

Note: Totals may not add to 100 because of rounding.

Sources: Data are from Demographic and Health Surveys for Botswana (1988), Burundi (1987), Liberia (1986), Mali (1987), Senegal (1986) and Zimbabwe (1988).

younger who had not had a recent birth were most likely to diverge from this pattern, with between 75 and 100 percent wanting a birth soon.

There was less association between risk category and intention among women subject to limiting risks—those who were older than 34, those who were at high parity and those who were both older and at high parity. Overall, the proportion of these women wanting to limit their childbearing ranged from 26 percent in Mali to 50 percent in Zimbabwe. The intention to limit was highest among women who were both older and at high parity, ranging from 38 percent in Mali to 64 percent in Zimbabwe.

Among women who fell into none of these risk categories, the desire to have a birth soon varied from 19 percent in Zimbabwe and Botswana to 69 percent in Senegal. Most women in this group, except those in Senegal, intended to delay their next birth for two or more years.

It appears from the foregoing analysis that women's reproductive intentions are indeed influenced by age, parity and the interval since their last birth. We use a two-stage analysis to assess how these risk factors, in combination with other factors, influence intentions. The first step assesses the determinants of the intention to limit births. The second focuses on the intention to space the next birth (i.e., the desired waiting period from the date of the interview until the next birth).

The "limiting model" uses logistic regression analysis to evaluate the relationship between a set of dichotomous and continuous independent variables and a dichotomous dependent response variable—desire to limit vs. no desire to limit. The "spacing model" uses linear regression to examine the determinants of the intended waiting period until the next birth. In both models, the independent variables fall into four categories: reproductive risk, other aspects of reproductive experience, socioeconomic status and family planning program exposure.

• *Reproductive risk.* Each model includes two variables in this category. The limiting model focuses on older age (35–49) and high parity (four or more births).[10] Age is included as a covariate because it allows us to exploit the incremental nature of the age-associated risks of childbearing.* In addition, a dichotomous parity variable indicates whether a woman has had four or more births.

The reproductive risk factors included in the spacing model are younger age (18 or under) and short birth interval (less than 24 months).[11] Age is included as a continuous variable and birth interval as a dichotomous variable.

• *Other aspects of reproductive experience.* A woman's reproductive intentions are influenced by aspects of her own reproductive experience and by the cultural norms associated with them. Two variables are selected to measure pertinent aspects of this experience—whether the woman has experienced the death of a child and whether she has a living son.

A woman who has experienced the death of an infant or child may be less likely to want to limit her births. In societies with relatively low rates of infant and child mortality, however, infant or child death may be a less important factor in shaping a woman's reproductive intentions. All the spacing models and four of the limiting models (those for Burundi, Liberia, Mali and Senegal) include a dichotomous variable indicating whether a woman has experienced the death of at least one child. In countries for which the variable did not improve the limiting model (Botswana and Zimbabwe, countries with relatively low infant and child mortality rates), it was omitted.

The importance Africans place on having a son should not be underestimated.[12] Although the effect of having a living male child on a woman's decision to space her next birth is unclear, not having a male child may make her more eager to have another child soon. This variable is included in all the spacing models and two of the limiting models (those for Botswana and Zimbabwe). It was omitted from the limiting models for those countries in which the death of a child significantly improved the model, making the effect of having a living male child not significant.

• *Socioeconomic status.* Women of higher socioeconomic status tend to have better access to health care and thus are likely to have greater awareness of the health consequences associated with reproductive risk factors. Further, the demand for child quality over quantity is closely linked to socioeconomic status.[13] We chose a single variable—education—to measure socioeconomic status.

Although a consensus has not been reached on the mechanism by which education affects fertility, there is general agreement that increased education tends to reduce fertility.[14] In this analysis, education is expected to be positively associated with the desire to limit or space births. In countries where the level of women's education is very low, we simply distinguish between having no education and having some level of education. In more developed countries (Botswana and Zimbabwe), we define three levels of education: none, some primary and at least some secondary.

The effect of residence on reproductive intentions appears to be less direct than that of education. Regression equations that used urban-rural residence as a proxy for socioeconomic status were found to fit the data poorly. Including both urban-rural residence and education in the model further diminished the effect of the residence variable.

• *Family planning program exposure.* Exposure to a family planning program is expected to influence reproductive intentions by increasing awareness of the health consequences associated with reproductive risk factors and by informing women of the family planning options available to help them realize their reproductive intentions.

Knowledge of modern family planning is used as a proxy for the impact of services on reproductive behavior. This measure is not a perfect proxy, because it may reflect in part the motivation of women to seek out information on family planning. Still, this measure has been found to be quite sensitive to the accessibility and quality of family planning services.[15] In countries with low levels of awareness (Burundi, Liberia, Mali and Senegal), we identify women who were able to spontaneously recognize at least one modern method (or after probing, two methods). However, in the spacing models for countries with higher levels of awareness (Botswana and Zimbabwe), we identify women who spontaneously knew of two or more methods (or four or more methods after probing).

The Limiting Model

Regression results for the limiting model are presented in Table 4. The same core model is fitted to all six countries, although minor modifications are made to account for country-specific factors. For example, for Botswana and Zimbabwe, where women's education levels are relatively high, we control for both primary and secondary levels of education.

Because of sparse cell distribution as the number of factors in the model increased, we attempted to develop a parsimonious model. Even with a five-factor model, we encountered empty cells in most cases. When this occurred, we corrected for the potential instability of the estimates by adding a very small value to all the cells.

The model fits Botswana and Burundi well and fits Zimbabwe and Liberia fairly well. Therefore, our initial discussion of results will be restricted to those four countries.

Although not all the coefficients were significant, each variable did lead to a statistically significant improvement in the fit of the model. As expected, parity was the most important determinant of desire to limit births in these four countries. In Botswana and Burundi, women who had had at least four live births were more likely (by 43 percent and 79 percent, respectively) than women who had fewer children to want to limit births. In Liberia and Zimbabwe, high-parity women were 68 percent and 66 percent more likely than lower parity women to want to limit births.

Age is a less important factor. However, the overall fit of the model was improved for three of the four cases when it was introduced as a continuous variable. Liberia was the only country for which the model's fit was not improved by this adjustment. Here, women who were 35–49 were 36 percent more likely than younger women to want to limit births. In Liberia, women who were both older and at high parity were 128 percent more likely to want to limit births than women who were exposed to neither of these risks.

*The limiting models for Liberia and Senegal use a dichotomous variable for age rather than the age covariate, because in those two cases, the dichotomous variable improved the fit of the model.

Although age and parity had the greatest influence on desire to limit, other aspects of reproductive experience were also important in most cases. Having a male child was particularly important in the two lower fertility countries of Botswana and Zimbabwe. Women with living sons in these countries were more likely (by 20 percent and 29 percent, respectively) to want to limit births. This effect was enhanced when combined with a reproductive risk factor. For example, women who were at high parity and who had a living male child were 73 percent (Botswana) and 114 percent (Zimbabwe) more likely to want to limit births. The death of a child had a negative effect on desire to limit births, but was significant only in the case of Liberia, where women who had had such an experience were 10 percent less likely to want to limit births.

Education was a significant factor in each of these four countries. In Burundi and Liberia, where we evaluated only the effect of having some schooling, educated women were 10 percent and 13 percent more likely to want to limit births. In Botswana and Zimbabwe, education also had positive effects on desires for limitation. Here, we distinguished between the effects of primary and secondary education. In Botswana, secondary education had the greater and only significant effect; women with at least some secondary schooling were 10 percent more likely to want to limit births. In Zimbabwe, primary education had the greater effect; women with some primary schooling were 21 percent more likely to want to limit, compared with women with at least some secondary schooling, who were nine percent more likely to want to limit births.

Awareness of family planning had a positive effect in each country. In Botswana and Zimbabwe, where we distinguished between high and low levels of awareness, women who were more aware were 12 and nine percent more likely to want to limit than those who were unaware. In Burundi and Liberia, where a distinction was made between some and no awareness, women who were aware were 12 percent and 21 percent more likely to want to limit. Again, the combined effect of knowledge about family planning with reproductive risk was large. In Liberia, high-parity women who had some awareness of family planning were 103 percent more likely to want to limit than women who fell into neither of these categories. High-parity women who were both aware of family planning and older were 176 percent more likely to want to limit than those who were unaware and faced neither of these reproductive risks.

The same five-factor limiting model fit Senegal less well and fit Mali poorly. Despite the poorer fit, however, the coefficients in these two models had the same sign and were of similar magnitude to those of the better fitting models. Although the factors increased the explanatory power of the model, its overall explanatory power was very small.

We were able to improve the fit in Senegal only slightly by introducing a factor that distinguished between urban and rural residence. We attempted to improve the fit of the model for Mali by including a variable that would help determine whether males are crucial to reproductive decision-making; we included whether or not the respondent and her husband had discussed family planning in the past year, but little improvement resulted. Although men appear to play a dominant role in fertility decisions in Mali,[16] we were unable to capture this effect in our model. The poor overall fit in Mali may reflect, in part, the limited variation in a number of variables. The Mali sample had the lowest proportion of women wanting to limit births (16 percent), the lowest proportion having any education (14 percent) and the lowest proportion knowing at least one method of family planning (21 percent).

Attempts to include higher level interactions in the model for all six countries were generally not fruitful. Adding the interaction of age and parity sharply increased the number of empty cells and led to low P-values for the likelihood ratio and large standard errors for some of the coefficients. The interaction of education and knowledge of a modern method of family planning caused the P-value to drop when it was added to the core five-factor model.

The Spacing Model

We next assess the determinants of the length of time that a woman desires to wait before having her next child. We consider here only women who want more children. Initial attempts to combine limiters with spacers led to unsatisfactory results, suggesting that the two intentions, to space and to limit, have different motivations.

The model does not fit the data for any of the six countries particularly well, judging from the proportion of variance explained by the dependent variable. This suggests that the factors we have included here are only a few of the influences determining the length of time a woman wishes to wait before her next birth. The model fits the data best for Zimbabwe and Botswana (R^2=0.194 and 0.169, respectively) and fits the data for Liberia to a lesser degree (R^2=0.102). For the remaining three countries—Burundi, Mali and Senegal—the model has virtually no explanatory power (R^2=0.016, 0.032 and 0.052, respectively).

For Zimbabwe and Botswana, both

Table 4. Results of logit regression analysis of desire to limit births among women currently in union, by country and variables

Country and variable	Coefficient	Standard error
Botswana (N=1,600)		
Intercept	0.63	0.11*
Parity ≥4	0.36	0.03*
Age, covariate	0.06	0.04
Son alive	0.19	0.05*
Primary educ.	0.02	0.05
Secondary educ.	0.10	0.04*
Know a method	0.12	0.07
Burundi (N=2,669)		
Intercept	0.87	0.10
Parity ≥4	0.58	0.04*
Age, covariate	0.06	0.04
Child died	–0.02	0.03
Some educ.	0.10	0.33*
Know a method	0.11	0.03*
Liberia (N=3,538)		
Intercept	0.88	0.36*
Parity ≥4	0.52	0.03*
Age 35–49	0.31	0.03*
Child died	–0.10	0.03*
Some educ.	0.12	0.03*
Know a method	0.19	0.03*
Mali (N=3,005		
Intercept	1.05	0.12*
Parity ≥4	0.48	0.46*
Age, covariate	0.02	0.03
Child died	–0.06	0.03*
Some educ.	0.03	0.04
Know a method	0.02	0.04
Senegal (N=3,362)		
Intercept	0.78	0.05*
Parity ≥4	0.54	0.04*
Age 35–49	0.45	0.03*
Child died	–0.12	0.03*
Some educ.	0.12	0.05*
Know a method	0.10	0.03*
Zimbabwe (N=2,583)		
Intercept	0.73	0.09*
Parity ≥4	0.51	0.03*
Age, covariate	0.03	0.03
Son alive	0.26	0.04*
Primary educ.	0.19	0.05*
Secondary educ.	0.09	0.03*
Know a method	0.09	0.03*

*p<0.05.

Note: Botswana: P=0.63, Likelihood Ratio=14.5, Degrees of Freedom=17; Burundi: P=0.61, Likelihood Ratio=8.2, Degrees of Freedom=10; Liberia: P=0.31, Likelihood Ratio = 29.1, Degrees of Freedom=26; Mali: P=0.00, Likelihood Ratio=28.6, Degrees of Freedom=10; Senegal: P=0.09, Likelihood Ratio=36.0, Degrees of Freedom=26; Zimbabwe: P=0.35, Likelihood Ratio=18.7, Degrees of Freedom=17.

Table 5. Results of regression analysis of desire to space births among women currently in union, by country and variables

Country and variable	Coefficient	t
Botswana (N=1,044†)		
Intercept	22.29	4.63*
Age, covariate	–0.83	–6.50*
Interval <2 yrs.	13.11	7.59*
Child died	–1.11	0.50
Son alive	9.25	4.86*
Primary educ.	7.55	3.94*
Secondary educ.	8.03	3.36*
Know ≥4 methods	10.82	3.53*
Burundi (N=1,685†)		
Intercept	34.44	7.91*
Age, covariate	–0.21	–1.38
Interval <2 yrs	5.77	3.23*
Child died	–3.75	–2.04*
Son alive	1.87	0.92
Some educ.	1.16	0.54
Know ≥2 methods	3.24	1.96*
Liberia (N=2,678†)		
Intercept	14.32	10.16*
Age, covariate	–0.15	–3.16*
Interval <2 yrs.	5.40	7.91*
Child died	–1.06	–1.54
Son alive	4.65	6.53*
Some educ.	5.81	7.39*
Know ≥2 methods	3.02	4.51*
Mali (N=2,207†)		
Intercept	–26.84	7.56*
Age, covariate	–.55	0.12
Interval <2 yrs	7.54	1.80*
Child died	2.06	1.13
Son alive	1.90	1.96
Some educ.	7.24	2.63*
Know ≥2 methods	2.88	1.34
Senegal (N=1,432†)		
Intercept	29.64	20.73*
Age, covariate	–.30	–5.67*
Interval <2 yrs.	0.59	0.87
Child died	0.09	0.13
Son alive	0.92	1.19
Some educ.	3.32	3.71*
Know ≥2 methods	1.83	2.73*
Zimbabwe (N=1,606†)		
Intercept	22.53	7.66*
Age, covariate	–0.58	–6.74*
Interval <2 yrs.	13.40	12.29*
Child died	–4.34	–3.28*
Son alive	6.57	5.21*
Primary educ.	1.76	1.18
Secondary educ.	6.80	3.66*
Know ≥4 methods	7.09	5.34*

*p<0.05.

†Sample excludes women who desire to limit births and women who report themselves as infecund.

Note: Botswana: R^2=0.169, F=30.19*; Burundi: R^2=0.016, F=4.63*; Liberia: R^2=0.102, F=50.44*; Mali: R^2=0.032, F=12.30; Senegal: R^2=0.052, F=12.94; Zimbabwe: R^2=0.194, F=58.18*.

younger age and short birth interval were statistically significant, as Table 5 shows. Women who had had a recent live birth wanted to delay their next birth 13 months longer than women who had not. Age, on the other hand, had a slight negative effect on desired waiting time. In Botswana and Zimbabwe, the desired waiting period dropped by a little less than one month for each year of age.

Other aspects of a woman's reproductive experience also influenced her reproductive intentions. In Zimbabwe and Botswana, women who had a living male child wanted to wait longer before having their next birth (by seven months and nine months, respectively) than those who did not. In Zimbabwe, the death of a child had a negative effect on the waiting period: Women who had experienced an infant or child death wanted to wait four months less than those who had not.

Education also had a significant effect on the desired waiting time. In Zimbabwe, women with some secondary or more education wanted to delay their next birth nearly seven months longer than did those with less education. Having some primary education, however, did not significantly affect desired waiting time. In Botswana, primary and secondary education were both significant and had the same effect; in each case, women wanted to delay their next birth eight months longer than did those with no education.

Family planning awareness had a significant positive effect on desired waiting period. The effect was greatest in Botswana, where women who knew two or more methods unprompted and four or more with prompting wanted to delay their next birth 11 months longer than those who did not. In Zimbabwe, women with this level of awareness wanted to wait seven months longer than those who knew fewer than two methods.

Discussion

The findings presented in this paper have important general implications for policies and programs in these countries and, potentially, for other countries in Africa. First, the expressed reproductive intention to either limit or space births was quite common in these six countries. In Senegal, 56 percent of women expressed such an intention, while among the remaining five countries this proportion ranged from 71 to 88 percent. The large majority of these women expressed the desire to space. Even so, the proportions expressing a desire to limit were not insignificant, ranging from 16 percent in Mali to 33 percent in Botswana and Zimbabwe. For these women, longer-lasting methods of family planning would be appropriate.

From a programmatic perspective, our results suggest that women who are older, more educated and at high parity are most likely to express the desire to limit births. As noted earlier, this probably reflects that older, higher parity women have achieved their desired number of children. Additional research is required to determine the extent to which health considerations affect the desire to limit childbearing. In particular, the apparent poor correspondence between reproductive risk and intention in Mali and Senegal warrants further study.

The intention to space was more common than the intention to limit births in all countries considered here, ranging from 37 percent in Senegal to 62 percent in Mali. This would indicate that temporary methods of family planning are appropriate for meeting most demand in Africa. Many programs in Africa already attempt to reach these women through antenatal and child-care clinics. In the short term, these programs may become even more important as traditional practices of postpartum abstinence and breastfeeding decline in prevalence.

Among the variables that influenced intentions to delay the next birth, reproductive risk factors appeared to be the most important. In particular, women who had had a recent birth wanted to delay their next birth longer than those who had not. Among those who had had a recent birth, younger women tended to be more likely than older women to want to delay longer. Given this pattern and given that birthspacing provides important health benefits for children, young women should be an important target group for family planning services and information. The association between risk and intentions was particularly strong in Botswana and Zimbabwe, both of which have established programs that emphasize birthspacing. Further research is required to determine the extent to which, as well as the mechanisms by which, programs promoting birthspacing influence reproductive intentions. A consistently important factor was awareness of family planning methods. In Botswana, women with high awareness wanted to delay nearly a year longer than did women who were less aware. The effect of awareness was even greater than that of education in both Botswana and Zimbabwe.

The remaining background factors, although less important, tended to affect intentions to delay the next birth in expected patterns. For example, longer waiting periods were desired by women with higher levels of education, those who had not experienced a child's death and those who had a living male child. We are un-

able to explain very well the variation in intention to space in Burundi, Mali and Senegal. Delayers in those countries appeared to be a very heterogeneous group.

The analysis presented here has focused exclusively on reproductive intentions. Certainly, a fuller analysis is required to determine the extent to which these intentions are realized through reproductive behavior. The generally low levels of contraceptive prevalence revealed in the DHS data suggest that a majority of women in these countries take no effective measures to realize their intentions. Discovering the reasons for use and nonuse clearly warrants additional analysis.

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Resumen

Un análisis de datos de la Encuesta Demográfica y de Salud (EDS) de seis países del Africa subsahariano descubrió que los factores de riesgo reproductivo (edad, paridad e intervalo desde el último nacimiento) estaban altamente ligados el deseo de las mujeres de limitar los nacimientos. Entre las mujeres que habían tenido cuatro o más nacidos vivos, la probabilidad de formular el deseo de no tener más hijos era hasta 79 por ciento más alta que entre las mujeres de baja paridad. También era más probable que desearan limitar los nacimientos las mujeres con educación, de 35 años o más, las que estaban informadas sobre métodos de planificación familiar y las que tenían un hijo varón vivo.

En Zimbabwe y Botswana, una cantidad de factores también estaban asociados con el deseo de postergar el próximo nacimiento. Las mujeres que habían tenido un hijo en los dos años precedentes a la encuesta deseaban postergar su próximo nacimiento unos 13 meses más que las que no habían alumbrado recientemente, y las mujeres que tenían un hijo varón vivo deseaban esperar un tiempo más prolongado que las que no tenían un varón vivo (de siete y nueve meses, respectivamente). En Zimbabwe, las mujeres con educación secundaria o superior deseaban postergar su próximo nacimiento cerca de siete meses más que las con menos educación, y en Botswana, las mujeres con educación primaria o superior deseaban esperar ocho meses más que las mujeres sin educación. Las mujeres que tenían un conocimiento espontáneo de por lo menos dos métodos de planificación familiar deseaban esperar siete meses (en Zimbabwe), y 11 meses (en Botswana) más que las que conocían un solo método o ninguno.

Résumé

Une analyse des données de l'Enquête démographique et de santé effectuée dans six pays d'Afrique subsaharienne a révélé que les facteurs de risque de reproduction (âge, parité et intervalle depuis la dernière naissance) étaient en étroite corrélation avec les intentions de la femme de limiter les naissances. Les femmes ayant eu au moins quatre naissances vivantes étaient plus susceptibles, dans une proportion allant jusqu'à 79 pour cent, que les femmes avec parité inférieure d'exprimer le désir de ne plus avoir d'enfants. Les femmes instruites, celles âgées de 35 ans et plus, celles sensibilisées dans une certaine mesure aux méthodes de planification familiale et celles qui avaient un enfant mâle vivant étaient aussi plus susceptibles de vouloir limiter leurs naissances.

Au Zimbabwé et au Botswana, un certain nombre de facteurs étaient aussi associés au désir de retarder la prochaine naissance. Les femmes qui avaient eu un enfant au cours des deux années précédant l'étude voulaient retarder leur prochaine naissance de 13 mois de plus que les femmes qui n'avaient pas donné naissance récemment; et les femmes qui avaient un enfant mâle vivant voulaient attendre plus longtemps (sept et neuf mois de plus, respectivement) que celles sans enfant mâle vivant. Au Zimbabwé, les femmes ayant au moins un niveau d'instruction secondaire voulaient retarder leur prochaine naissance de près de sept mois de plus que les femmes moins instruites; et, au Botswana, les femmes ayant au moins un niveau d'instruction primaire voulaient attendre huit mois de plus que les femmes non instruites. Les femmes qui connaissaient au moins deux méthodes de planification familiale, sans qu'on ne leur suggère les méthodes, voulaient attendre sept mois (Zimbabwé) et 11 mois (Botswana) de plus que les femmes qui connaissaient moins de deux méthodes.

Special Report

Adolescent Fertility in Latin America and the Caribbean: Examining the Problem and the Solutions

By Lisa Remez

Early childbearing has long been a standard feature of Latin American and Caribbean societies. But contemporary socioeconomic and demographic conditions have conspired to make what was once simply a traditional life-event into one with far-reaching adverse effects on the adolescent mother, her child and society as a whole. Consequently, throughout the past decade, numerous programs have tried a variety of approaches to prevent adolescent childbearing, and failing that, to minimize the damage it can cause. In addition, surveys from a number of countries now exist that provide data on the magnitude of the problem and examine the determinants of teenage childbearing and its short-term and long-term social and financial costs.

For one week, 148 professionals involved with adolescents in 29 countries*—and a group of adolescents themselves—stopped to look back over a decade of research and programs and to evaluate their collective experience with an eye toward planning for the future. The International Conference on Adolescent Fertility in Latin America and the Caribbean, held November 6–10, 1989, in Oaxaca, Mexico, was jointly sponsored by The Population Council and The Pathfinder Fund, with assistance from the United Nations Population Fund (UNFPA), the Pan American Health Organization (PAHO) and the William and Flora Hewlett Foundation. By assembling the principal players from a wide variety of disciplines and backgrounds—including adolescents, researchers, program directors, sex educators, family planning providers, health care providers, government officials and representatives from international agencies—the organizers hoped to establish a set of regional priorities for the 1990s.

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According to Bonnie Shepard of The Pathfinder Fund, the conference was originally conceived to provide researchers and program managers, who rarely coordinate their efforts, with the opportunity to do so.[1] Kathryn Tolbert of The Population Council, Mexico, said that she and the other organizers realized that the region had already produced a large amount of documentation in the area of adolescent fertility. Thus, "there was no need for a *teaching* conference, but rather for a *sharing* conference which would help the participants evaluate their work and their country's progress in the context of the state of the art in the region."[2] Since the first regional conference on adolescent pregnancy and reproductive health held four years earlier in Oaxtepec, Mexico,[3] awareness of adolescent fertility and its attendant problems has increased substantially. The Oaxaca organizers felt that enough data had finally been collected to warrant an examination of future research and programs in terms of priorities, especially in light of the ever-increasing numbers of adolescents and the very limited resources available to educate and provide care for them.

Describing the Problem

During the opening ceremony, Carlos Serrano, the regional adviser for PAHO, established the wide-reaching societal context of adolescent pregnancy and childbearing. He referred to the phenomenon as "transcending the physical and psychosocial health of individuals of a single generation to become a strong indicator of social development" having repercussions throughout the evolution of several generations.[4] Early sexual initiation and childbearing cannot be considered as isolated events; instead, they reflect generalized problems such as those stemming from negative attitudes toward female sexuality, inadequate sexual education and a lack of alternative roles and opportunities for women, according to the background paper prepared by Lucille Atkin of the Mexican National Institute for Perinatology.[5]

In his opening address, George Zeidenstein, president of The Population Council, stressed the direct relationship between the low status of women and too-early pregnancy and childbearing. Zeidenstein asserted that no lasting solutions to the problem will be found "unless we recognize the discrimination faced by women in this region and in all parts of the world," since many "modern" patriarchal societies still endorse a woman's reproductive role at the expense of her productive roles.[6] Benjamin Viel, president of the Chilean Family Planning Association, presented the sobering reality that at its current pace of growth, the Latin American population will double in roughly 20 years. Thus, the Latin American nations will also need to double the present level of food production and number of spaces in employment, education, housing and health care to *maintain* the current level of misery. Of course, in the event that this doubling of life-sustaining resources does not succeed, the level of misery will increase accordingly.[7]

Throughout the week, various adults and adolescents active in the family planning field offered their views of the progress achieved—and the disappointments experienced—by research and program efforts in adolescent fertility, sex education, family planning and reproductive health services. Leo Morris, of the U.S.

*Caribbean—Antigua, Barbados, Guyana, Haiti, Jamaica, St. Lucia and St. Vincent and the Grenadines; Latin America—Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay and Venezuela; Other—the United States and Switzerland.

Centers for Disease Control (CDC), interpreted some of the most recent findings of the Young Adult Surveys that have been carried out in seven Latin American cities and in Jamaica.[8] In all the surveys, household samples of 15–24-year-old men and women were interviewed. In addition to data on sexual activity, fertility and contraceptive knowledge and use, the surveys supply information on reactions to sex education courses and their content. After expressing gratification with the consistency of the results, Morris brought up what many other researchers would also mention during the conference—that adolescent sexual activity is sporadic and unplanned (especially the first experience), a finding that directly affects the design and delivery of contraceptive services targeted to teens.

The Young Adult Surveys reveal that significant proportions of adolescent women in union conceived their first child premaritally—in South America, this proportion ranges from a low of 25 percent in Guayaquil, Ecuador, to 63 percent in Santiago, Chile.[9] These data support the common perception that many adolescents marry to legitimate a birth. The data refer only to births, however. The number of premarital pregnancies would undoubtedly be higher if those terminated by illegal abortions were also counted. (One estimate published in 1985 and derived from various fertility surveys suggests that the rate of abortion in Latin America ranges from 30 to 60 per 1,000 women younger than 19 years of age.[10])

Morris presented age-specific fertility rates based either on recent national surveys or on the latest available data (Table 1). These range from a high of 152 live births among 1,000 women aged 15–19 in Grenada to 59 per 1,000 in Chile. According to Morris, declines in the fertility rate among this age-group have occurred in a number of countries, although no trend data were presented. Morris said that rising age at marriage in the region is responsible for these present declines (as opposed to changes in sexual activity or contraceptive use) and could result in still further ones. But even if the teenage birthrate is declining, the number of births to teenagers will continue to rise as the number of women in this age-group continues to grow.

Recent trend data on adolescent fertility rates in three South American nations—Brazil, Colombia and Peru—present a somewhat mixed picture. In Colombia, for example, the age-specific fertility rate has been declining steadily. The rate went from 118 births per 1,000 15–19-year-old women in the late 1960s to 96 per 1,000 in the mid-1970s, and to 78 per 1,000 in the 1981–1986 period.[11] The situation in Peru, however, has been fairly stable, mostly because the rapid rise in adolescent fertility rates in rural areas (from 115 per 1,000 in the mid-1970s to 137 per 1,000 for the 1981–1986 period) all but cancelled out a decline in urban areas. Thus, the overall rate has stayed virtually the same—at 84 per 1,000—over the past two decades.[12] In Brazil, the most populous nation in Latin America, fertility rates among adolescents in both urban and rural areas have been rising, so the national rates have increased, from 75 per 1,000 in 1970 to 81 per 1,000 in the 1981–1986 period.[13] (A comparative profile of adolescents in these three countries, with some additional analysis for the entire region, is currently under way.[14])

As AIDS becomes more of a concern throughout Latin America and the Caribbean, it is imperative that adolescents potentially at risk of contracting the human immunodeficiency virus (HIV) be adequately informed of the danger. Five of the Young Adult Surveys measured AIDS knowledge. According to Morris, the responses from young adults in five South American cities (Salvador and São Paulo, Brazil; Quito and Guayaquil, Ecuador; and Santiago, Chile) indicate that the level of AIDS knowledge is very high—over 90 percent of respondents knew the three principal modes of transmission.[15] Nevertheless, a substantial amount of misinformation persists, with 31–63 percent of respondents affirming that the HIV virus can be spread by mosquitoes, by sharing utensils or by using an infected person's bathroom. These young adults (along with their peers in the United States[16] and probably elsewhere) appear to share the "adolescent syndrome": They acknowledge that others are at risk but do not believe themselves to be. For example, in the two Brazilian cities, just four percent of sexually active unmarried women and 10 percent of similar men reported that they are at high risk of AIDS, while 70 percent of these same adolescents said that sexually active unmarried young adults in general are at high risk of contracting the disease. (Brazil, with by far the largest number of AIDS cases in Latin America, is second only to the United States in reported cases worldwide.[17])

The Young Adult Surveys also show that adolescents in the region initiate sexual activity at an early age; of those who reported a premarital sexual experience, 14–36 percent of the women and 42–68 percent of the men said that they had had intercourse before age 16.[18] This early initiation results in longer exposure to sexual intercourse and thus a heightened risk of contracting sexually transmitted diseases (STDs). Alberto Rizo, regional representative for The Pathfinder Fund, mentioned several other factors that when considered together with this increased exposure time, are cause for concern—those are, the definite increase in the numbers of adolescents who will be sexually active, the scarcity of studies on attitudes toward and knowledge of STDs, the persistence of misinformation and myths about STDs, and perhaps most important, the nonexistence or inaccessibility of adequate STD treatment services for adolescents.[19]

This last point—the accessibility and acceptability of various adolescent services—received much of the participants' attention throughout the conference. Speaker after speaker emphasized the need for adolescents themselves to participate in the design, promotion and evaluation of programs aimed at this age-group; in the design of curricula for sex education courses and in the teaching of those courses; in the creation and dissemination of informational materials; in the diagnosis of the specific needs of adolescents; in the sensitization of politicians and policymakers to those needs; and in the

Table 1. Age-specific fertility rates per 1,000 women aged 15–19, selected Latin American and Caribbean countries, by year of survey

Country	Rate	Year
Caribbean		
Barbados	91.7	1981
Cuba	76.8	1986
Dominican Republic	104.0	1981–1985
Grenada	152.0	1985
Jamaica	113.0	1985–1987
Trinidad &Tobago	84.0	1983–1987
Central America		
Costa Rica	99.0	1984–1985
El Salvador	138.0	1984–1988
Guatemala	139.0	1982–1986
Honduras	134.8	1986–1987
Mexico	84.0	1987
Panama	118.0	1984
South America		
Bolivia	95.0	1985–1989
Brazil	80.6	1981–1985
Chile	58.8	1987
Colombia	74.0	1984–1986
Ecuador	91.0	1982–1986
Guyana	119.0	1974
Paraguay	111.5	1987
Peru	78.9	1984–1986
Venezuela	72.0	1986

Source: See reference 8.

counseling of their peers. Isméri Conceição of the Programa de Assistência Médica e Psicossocial à Adolescência (Medical and Psychosocial Assistance Program for Adolescents—PAMPA) in São Paulo, asserted that adults need to closely monitor themselves as they interact with adolescent clients. Only then can they understand how their own preconceptions and prejudices keep them from successfully reaching adolescents.[20] Conceição also said that adolescents must be allowed to become young adults, a process that is particularly difficult for older adults to accept, since it involves their coming to terms with aging and relinquishing control over adolescents as dependent children.

Through their contributions to the conference, the adolescent participants demonstrated the potential that exists for the effective involvement of young people. They prepared and presented artwork, a lively rap song (whose lyrics told of a young girl's unwanted pregnancy) and an even livelier dramatic sketch. The drama dealt with a young woman's decision to have sex and her dilemma over what to do when she becomes pregnant, all in the face of inadequate counseling, guidance and information from the adults around her. The discussion that followed brought out the shared objective of both the adolescents and older participants that parents be more involved in the process of sex education. Both generations of conference participants agreed, however, that if this objective is to become reality, parents need to be taught how to talk with their children about sex education.

Evaluating Progress

Several successful programs in the region have enlisted the support of adolescents to teach and counsel their peers. The Centro de Orientación para Adolescentes (Adolescent Guidance Center—CORA) in Mexico City, one of Latin America's first comprehensive adolescent centers, has been in existence for more than 11 years and thus has been able to test the validity of several different approaches. According to its president, Anameli Monroy, CORA's experience has shown that sex education can be effectively integrated with other health and educational activities; that young people more readily accept information and contraceptives when these are provided by their peers; and that sex education programs can and should be combined with the distribution of barrier methods (under careful supervision by medical staff).[21] For several reasons, CORA officials chose to distribute condoms and spermicides. The reasons included the sporadic nature of adolescent sexual activity, the protection condoms provide from STDs and AIDS, the inappropriateness of the IUD for adolescent women, the high rate of incorrect use of the pill among these young women, and the high proportion of males attending the center (70 percent)—an indication that a male-oriented method would be the easiest to promote. A spermicide was distributed along with condoms both to enhance the effectiveness of the barrier method and to promote the sharing of contraceptive responsibility.

In a session devoted to law and policy, Monroy outlined CORA's strategy for running an adolescent health center within the conservative and traditional culture of Latin America. As the first project of its type, CORA started out by trying to avoid making waves. Monroy quickly learned, however, the importance of seizing an opening in the political climate and the need to be flexible and to adjust activities to fluctuations in that climate. On two occasions, the center temporarily stopped distributing condoms in response to disapproval of the center's activities and of teenage programs in general, expressed in the press. Monroy, along with Manuel Urbina, director of the family planning program of the Mexican Health Ministry, acknowledged the significant influence of the international climate on local programs and attitudes. As a result of the 1974 World Population Conference in Bucharest, for example, the Mexican government publicly changed its position on family planning and recognized family planning as an individual human right. In addition, both Monroy and Urbina noted that the AIDS epidemic has changed the government's and the public's attitudes toward sex education and condoms.

Pamela McNeil of the Women's Center in Jamaica described how a successful center for adolescent mothers managed to evolve in an initially hostile political climate. The Center boasts a well established program that provides counseling and care and also helps adolescent mothers complete their secondary school education, since many girls are not accepted back into their schools after a pregnancy. According to McNeil, the center's Programme for Adolescent Mothers deliberately adopted a low profile at first, playing down any media coverage until enough "success stories" and positive results had accumulated to let the facts speak for themselves. The Ministry of Education of Jamaica has now designated the program headquarters as an official center for high school completion exams. McNeil emphasized the merits of a conciliatory approach but pointed out that the Women's Center has consistently resisted political pressure to take partisan positions.[22]

Although in the Caribbean nations the problem is the same—high levels of unwanted childbearing among very young women—the social, historical and cultural context that must be dealt with is very distinct from that of Latin America. (Several Caribbean nations presented their experiences at the conference, but the demographic situation in Haiti was not discussed, even though the mean number of live births has been rising among adolescents and total fertility rates are still increasing.[23]) Tirbani Jagdeo of the Caribbean Family Planning Association cited the lack of substantial social and psychological penalties as contributing to the high rates of early childbearing that exist in the Caribbean. According to Jagdeo, no great social costs are brought on by adolescent childbearing because most adolescent mothers live in communities where early childbearing is the norm. Thus, parents cannot exercise the power of personal example, and communities are equally unable to exert social pressure.[24] Furthermore, Jagdeo stated that most adolescent mothers were themselves raised by a single parent. Girls assume adult roles early and frequently care for younger brothers and sisters, a situation that is common throughout Latin America as well. (Qualitative data from group sessions with adolescents in Mexico City indicated that some girls would prefer getting pregnant and caring for their own baby to caring for their numerous siblings.[25])

So that those participants working in similar fields could confer and build on their individual experiences, the conference schedule allotted time for special interest group discussions and the presentation of their conclusions. Attendees who formed a special interest discussion group on Adolescents in the Caribbean concluded that more research was needed to explain the differentials in early childbearing—specifically, why some adolescent mothers fare very well and what motivates the decision to go through with a pregnancy rather than opt for an abortion. Other groups focused on adolescent fertility in the context of traditional gender roles, basic research, the needs of children of adolescents, Knowledge, Attitudes and Practice surveys on family planning in secondary schools and school-based clinics.

Some participants formed a group entitled "Failures" so that program planners and researchers could learn from their mistakes. The group drew up a list of the mistakes that have inevitably been made over the years. The biggest repeat offender was the lack of continuous evaluation in programs, which can lead to results that are completely divorced from the project's original objectives. Also mentioned were neglecting to use available data in the design of programs, failing to present data honestly or impeding its comprehension by either too sophisticated or too simplistic a methodology, and tactical errors in the delivery of services, including having inadequate hours, having inaccessible locations and speaking to adolescents in language that they cannot identify with or understand. "Bad decision-making" by donor agencies was also cited, with the supposition that most of this is caused by human factors rather than by inadequate technical information.

Another interest group discussed the crucial area of funding for adolescent programs. The group noted that obtaining grants was complicated by the fact that no funding agency had an official policy on adolescents and that requirements imposed by donors often circumscribe creative solutions to problems, the very thing that the donor agencies request. The members recommended that the donor agencies reevaluate many of these restrictions and collaborate more with one another so that money is not wasted on duplicate projects. The discussants also decided that a "pressure group" should be formed to impress upon donors that funding is still urgently needed in Latin America and the Caribbean; participants said that some donors had "rewarded" them for running successful programs by cutting off funding with the explanation that needs were now more pressing in Africa.

Defining Solutions

The bulk of this participatory conference's agenda was addressed through the six stable working groups that met throughout the week. In the first of the sessions, which was devoted to reproductive health services and education for adolescents, participants attempted to identify the target population (adolescents at risk for pregnancy), the cultural and social barriers to family planning use, and the service approaches and settings that had worked best. There was a consensus among the geographically and professionally diverse audience that multiservice programs incorporating reproductive health care, sex education, counseling and family planning work best. The need to "de-medicalize" contraceptive services and treat the whole adolescent, attending equally to mental, physical and psychological health, was repeatedly expressed. The long list of obstacles to the successful delivery of reproductive health services and education included the beliefs that these will promote promiscuity and that motherhood is the one ideal role for women; the policy of the Catholic Church toward sexuality and contraception; the inaccessibility and unacceptability of programs geared to adolescents—to which the stereotypes and prejudices of program staff contribute a great deal; a lack of parental involvement; a general reluctance among adults to talk about or accept adolescent sexuality; and myths and misinformation about sexuality and contraceptives. Among those barriers originating with the adolescents themselves, the participants specified fatalism, lack of self-esteem and initiative, lack of expectations for the future, and a difficulty equal to that of adults in talking openly about or accepting their sexuality.

Although many—but by no means all—of the countries in the region already have important baseline data, participants in the working session on basic research and evaluation mentioned the need to better disseminate those data, to incorporate them more effectively into the design of programs and to conduct more diagnostic, anthropological and qualitative research in the area of adolescent sexuality and fertility. The conference participants strongly agreed that basic data on induced abortion among adolescents were urgently needed. Despite the belief that illegal abortion is common in many of the countries represented, virtually no statistics are available to accurately describe the problem and the way abortion fits into the adolescent fertility equation. Hospital data on admissions for abortion complications provide only a glimpse into the actual levels of morbidity and mortality caused by abortion, which is illegal throughout Latin America and the Caribbean, with the exceptions of Barbados, Belize, Bermuda and Montserrat, which recently liberalized their laws, and Cuba.[26]

In addition, the conference participants called for longitudinal studies on adolescent mothers and their children and for basic research on the gap between knowledge and behavior, on the differences in cost-effectiveness (in both human and financial terms) of preventive approaches vs. after-the-birth services, and on the attitudes and behavior of adolescent males.

In a discussion about formal sex education, the working groups specified some of the obstacles that prevent it from being taught effectively—the greater emphasis placed on factual information over exploring attitudes and processes of socialization; the lack of parental involvement and parents who are themselves misinformed; the Catholic Church (especially its control over the content of sex education courses taught in the parochial schools); restrictive laws and policies; and the fact that significant numbers of adolescents are no longer (or have never been) in school, so that alternative courses need to be developed and taught in informal settings. The conference participants felt that a universal sex education curricula was unnecessary, but that courses should impart universal values. There was unanimous agreement that more creative means of measuring the impact of sex education courses need to be developed; continuing to count the numbers of students who have taken courses or who use or do not use contraceptives will tell very little in the long run. Again, the participants requested that sex educators collaborate more effectively with researchers so that those who are designing the curricula have the scientific instruments to determine whether courses result in changes in sexual attitudes and behavior, and not only in knowledge. Finally, the conference participants acknowledged that because of the socioeconomic, religious and cultural barriers specific to Latin America, the region is not likely to adopt the kind of school-based health clinics (which can include contraceptive services) that are being introduced in the United States.[27]

Conclusions

After a week of vigorous debate, the conference participants pulled together the week's agenda in the form of recommendations to researchers, program managers and funding agencies. They agreed that the moment had arrived to initiate comparative regional studies and to share—and improve the dissemination of—available data rather than spend scarce resources repeating work that has already been done. The general need to improve cooperation came up frequently, specifically the need for researchers and service providers to collaborate more efficiently. One possible solution offered to bridge the gap between these two branches was the application of operations research to diagnose problems and test alternative solutions. There was also general agreement that the past decade has proved how nec-

essary it is to include, from the beginning, service providers, program planners and managers, researchers, administrators, politicians and adolescents in the design, implementation and evaluation of programs. Despite the difficulties involved, a continuous evaluation component that is incorporated into the program's design was considered to be essential for running efficient and successful programs with lasting results.

These future priorities were articulated in a declaration to be submitted to the governments and governmental organizations throughout the region. The Oaxaca Declaration estimates that in Latin America and the Caribbean, a total of 22.3 million women younger than 20 currently have at least one child; it also points out that the number of young people aged 10–24 in the region will exceed 150 million by the year 2000.[28] Given these numbers, the declaration calls specifically for the formation of working groups at the local and national level to increase awareness of adolescent needs and problems and to impress upon donor agencies that the needs of Latin America are still a priority and that adolescent programs implemented there can serve as models for other regions. The document also calls for the establishment of sex education as a fundamental right of adolescents.

The Oaxaca Conference gave professionals from all over the region the opportunity to form essential networks, to share information, education and communication materials (and thus maximize resources), to exchange ideas and complementary experiences and debate new strategies and methodologies. Participants left with models of programs that have succeeded—and examples of others that have failed and why—fresh in their minds. The conference was enriched by the adolescent participants, whose presence reinforced the need for direct and honest communication between family planning professionals and the population that their work is designed to serve.

The week's discussions left little doubt that the very different approaches that researchers and service providers take toward the problem of adolescent fertility need to be brought closer together. Overall, the need for increased cooperation at all stages of research and program development emerged as indispensable to achieving further progress in the area of adolescent fertility and sexuality.

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DIGEST

Traditional Attitudes, Fear of Surgery Represent Important Barriers to Female Sterilization in Zaire

The main obstacle to acceptance of sterilization in Zaire is the belief that a wife must produce many children, as her part of the marriage bargain, according to rural and urban Zairians interviewed in 1986.[1] Women's reactions to tubal ligation were generally negative; they reported feeling pressure to have a large number of children, and said they feared that their husbands would leave them for someone else if they stopped having children. They also had fears and misconceptions about the operation itself, and they worried that the children they had might die. Zairian men questioned about sterilization also expressed concerns about child mortality, and they argued that it was a wife's duty to produce a large family. In addition, the men viewed a man who would allow his wife to be sterilized for nonmedical reasons as being dominated by her, and believed that such a woman might become either sexually promiscuous or unduly jealous or suspicious of her husband. The investigators stress the need for information, education and communication efforts to address these fears. They also recommend that health workers provide appropriate counseling and protect the confidentiality of women who decide to have tubal ligations.

Twenty-nine focus groups, each consisting of 8–12 persons, were held in six different sites within five of the 11 regions of Zaire: Kinshasa, Bas Zaire, Sud Kivu, Haut Zaire and Shaba. Each of the six sites in the study was to include five focus groups: one group for acceptors (women who had undergone tubal ligation within the last three years), two groups for potential acceptors (women who had at least five children and had been using a reversible method for at least one year) and two groups for husbands of potential acceptors (men who were not married to women in any of the other groups). Because one of the focus groups for husbands in Kinshasa could not be conducted, a total of 29 groups were studied.

In Zaire, tubal ligation is generally performed not to limit childbearing but because of maternal health. At least half of the women who were sterilized had experienced complications with previous pregnancies and/or were advised to avoid pregnancy, usually because of high parity. (Those with seven or more children expressed no regrets, but some of those with smaller families felt some remorse, even though they realized that the operation may have saved their lives.) Although several women (including some of the acceptors) approved of sterilization for economic reasons, most male and female focus-group participants were strongly opposed to this idea. The desire for large families was prevalent among both men and women: Most of the women believed sterilization to be acceptable only after a woman has had eight or more children.

Most of the women had learned about tubal ligation from health workers, and more than half of the acceptors had had the operation based on a doctor's recommendation. Others said that their husbands had suggested it because they already had enough children, and a few said that their grown children had persuaded them to do it when they began to have children of their own. Some focus-group participants thought it would be shameful to continue having children after they became grandmothers.

Responses from men and women in the focus groups indicated that acceptance of sterilization would be difficult, because of the country's strong pronatalist views. For example, one man explained that "it is the number of children that determines if the marriage has succeeded or failed." One woman said that if a woman had such an operation, the husband's family would complain that she wasn't having any children and would encourage the husband to divorce her, adding, "They will oblige him to take a second wife, even though the two of [them] were in agreement about the operation before it was done." Many women feared that their husbands might abandon them as a result of the operation.

Men and women both expressed fear of losing children they had. "Tubal ligation is not yet possible for us, because . . . you can have four children and death comes to take them all away from you," observed one participant. Other reasons given by the women who were potential acceptors included fear of dying from the operation and fear of becoming sexually unappealing. Those who knew of women who had had the procedure thought that these women were generally healthy, but they were also aware that common side effects included back pain, abdominal pain and heavy menstrual flow. Many women had misconceptions about the procedure itself. Some women thought that it involved "reversing the uterus," and many had heard of cases when the method had failed. These women were not opposed to family planning, however: Several were using Depo-Provera in hopes that this would eventually result in sterility.

Women who had accepted sterilization reported that their health was the same or improved after the operation, partly because they were free of pregnancy-related health problems. There were, however, widespread complaints of back pain, abdominal pain and menstrual problems. None of the focus-group participants had become pregnant since their operation, but many were concerned about rumors that the tubes could reopen. Most women reported no adverse effects on their marriages, and some said their marriages had improved, although few elaborated on this point. One participant reported the experience that many women feared: Her husband had, in fact, taken a new wife after she had had a tubal ligation. Even so, she

reaffirmed her decision to the group: "I say let them mock me. My five children are enough for me." Despite their general satisfaction with the method, most of the acceptors said they would be afraid to recommend the operation to others, for fear that it might lead to family troubles. They felt that other women should learn about the procedure from health workers.

In the sessions with men, the question, "What would be your reaction if your wife wanted to have a tubal ligation?" provoked the most heated responses. Most of the men said they would be very suspicious of any woman who wanted this operation, unless she had serious difficulties with childbirth. One man stated, "One must then believe that the woman has other intentions—debauchery, for example." The other reaction to this question suggested that it threatened the husband's role as decision-maker. As one man said, "For my part, after the marriage, my wife is my property. It's not for her to give the orders in the house." Another man explained why both families would object to such a decision: "My wife's family could interpret that I didn't love my wife and was looking for a way to have children outside of marriage. . . . My own family would be tempted to believe that I am dominated by my wife."

In five of the six sites, responses to questions about sterilization were quite similar: Both men and women generally believed that sterilization should be performed only for health reasons, and that the main consequence of tubal ligation is often marital conflict and dissolution related to the wife's inability to have more children. The sixth site, Kimpese (in the region of Bas Zaire), was an exception, because there was far greater acceptance of tubal ligation as a contraceptive method. One woman from the area said, "If you sent us the means to have the operation right here, many would accept." The researchers suggest that this positive attitude is related to the fact that in Bas Zaire there are elements of a matrilineal system, in which the children of the couple are considered to "belong" to the family of the wife (specifically to the wife's older brother). In any case, pressure from the husband or the husband's family regarding childbearing is not as strong in Kimpese. Several of the men indicated that if their wife wanted the operation, they would support her in that decision. One man said, "It's the money that's lacking. If not, she'd already have the operation."

In most of Zaire, only about one percent or fewer women of reproductive age have had a tubal ligation; in two areas where the operation is relatively accessible, only 5–6 percent have had the procedure done. The need for sterilization remains great, however, because of high parity and its attendant risks for women. Because of the fears surrounding tubal ligation, the investigators stress the need for appropriate information, education and communication. They also suggest that health workers provide appropriate counseling for couples considering this method, specifically addressing the fears expressed by men and women. In addition, because women who have the operation may face negative reactions from family and friends, ensuring confidentiality may further increase acceptance of tubal ligation in Zaire.—*M. Witwer*

Reference

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Overall Fertility Impact Of New Contraceptive Methods May Be Limited

Increasing overall contraceptive prevalence would have a greater impact on reducing unwanted births in developing countries than would replacing the least effective methods or introducing a new, highly effective method of contraception, according to a recently published analysis.[1] The investigators estimate that in Peru, for example, unwanted fertility could be reduced by anywhere from 12 percent to 54 percent, depending on the level and distribution of contraceptive use that is reached. None of these scenarios would reduce the total fertility rate (TFR) greatly, however, because the majority of childbearing in these countries is wanted.

The investigators used data from recent surveys conducted as part of the Demographic and Health Surveys (DHS) project in eight developing countries* to analyze the occurrence of unwanted births in the five years preceding the survey. TFRs in the eight countries varied widely, ranging from 2.8 lifetime births per woman in Sri Lanka to 7.3 births per woman in Burundi. The proportion of all births that were unwanted ranged from lows of seven percent in Burundi and 12 percent in Guatemala to highs of 26 percent in the Dominican Republic and 36 percent in Peru. Thus, the prevention of unwanted births could have a substantial demographic impact in several of these countries.

The researchers note that the differences by the woman's area of residence and education in the proportion of unwanted births vary substantially from country to country. For example, in Peru, about 30 percent of all births in urban areas are unwanted, compared with 41 percent in rural areas. In most of the countries, unwanted births are more common in rural areas than in urban areas, the two exceptions being Burundi (where 11 percent of urban births and seven percent of rural births are unwanted) and Guatemala (13 percent and 12 percent, respectively).

In addition, in Peru, 43 percent of all births among women with no education are unwanted, compared with 37 percent among those with a primary education, 23 percent among those with a secondary education and 27 percent among those with a higher education. The overall pattern is comparable in Colombia, the Dominican Republic and Trinidad and Tobago, and is fairly similar in Burundi and Ecuador as well. In Guatemala, on the other hand, unwanted births represent 11 percent of all births among the uneducated, 12 percent of those among women with a primary education, 18 percent of those among women with a secondary education and seven percent of those among women with a higher education.

Because levels of unwanted fertility are highest in Peru, the investigators used that country for the remainder of their analyses. They first calculated birthrates associated with contraceptive use and nonuse. Birth history data for the five-year period were used to classify each of the 60 months of exposure by whether the woman was using a method in that month and whether she had conceived during that month. Calculations are for all women aged 15–49 who were in a union (either marital or consensual). The investigators computed period birthrates (per woman-month of exposure) for mistimed, unwanted and all unintended births, by contraceptive method.

Over the five years preceding the survey, Peruvian women experienced 12.4 unwanted births and 34.3 mistimed births per 100 woman-years of exposure to the risk of pregnancy. Women protected by sterilization experienced only 0.1 unwanted births per 100 woman-years, those

*Burundi, Colombia, Dominican Republic, Ecuador, Guatemala, Peru, Sri Lanka and Trinidad and Tobago.

using the IUD had 0.9 unwanted births per 100 woman-years and those relying on the pill had 2.0 unwanted births per 100 woman-years. Rhythm users, in contrast, had 12.4 unwanted births per 100 woman-years, and women who used no method had 18.5 unwanted births per 100 woman-years.

The investigators next examined a number of scenarios to determine how greatly an increase in general contraceptive prevalence or in the use of effective methods would reduce unwanted fertility. (It was assumed that method-related fertility rates would be unchanged no matter how many women are using a particular method.) If the 14 percent of women who were relying on rhythm were to shift to the other, more effective methods according to the distribution of method use in Peru in 1986, the proportion of pill users would rise from six percent to nine percent of women, the proportion of IUD users would increase from seven percent to 10 percent, the proportion of women depending on sterilization would climb from eight percent to 12 percent and the proportions utilizing withdrawal or "other" methods would rise from five percent to eight percent each. In this scenario, the rate of unwanted births would fall by 12 percent, and the TFR would drop from 4.0 to 3.8 lifetime births per woman. The researchers conclude that "only modest gains can be realized without reducing the extent of nonuse."

If half of the 43 percent of women who were not using a method in 1986 were to do so and if the proportion of women relying on rhythm were to remain the same as in 1986, then 11 percent of Peruvian women would be using the pill, 12 percent would be relying on the IUD, 14 percent each would be depending on sterilization or rhythm, 10 percent each would be using withdrawal or "other" methods, and 21 percent would be using no method. In this scenario, the level of unwanted fertility would be reduced by 32 percent, and the TFR would be 3.6 lifetime births per woman.

The complete elimination of nonuse (which the researchers admit is an unrealistic expectation) would produce the following levels of prevalence, assuming that nonusers would be switching to rhythm as well as to more effective methods: pill, 13 percent; IUD, 15 percent; sterilization, 17 percent; rhythm, 28 percent; and withdrawal or "other" methods, 11 percent each. Under such conditions, the unwanted fertility rate would fall by 54 percent, and the TFR would be 3.4 lifetime births per woman.

Finally, the investigators calculated the effect of introducing a hypothetical new contraceptive method in Peru, one with an associated annual birthrate of about one per 100 and that would attract 25 percent of all nonusers. It is assumed that use of other methods would not change. In this scenario, 41 percent of unwanted fertility would be prevented, and the TFR would be 3.5 lifetime births per woman.

Contraceptive practice has risen steadily in Peru since 1976, especially the use of effective methods. Between 1981 and 1986, nonuse fell by seven percent; assuming that it would fall by another seven percent by 1991, the investigators estimate the unwanted birthrate in 1991, assuming a level of nonuse of 39 percent. They also inflate reliance on the other methods proportionate to the increase in the use of each method between 1981 and 1986. In such a situation, the rate of unwanted births would decrease by 15 percent, and the TFR would be 3.8 lifetime births per woman.

The researchers draw several conclusions from their exercise. First, they explain that "even in Peru," unless wanted fertility declines further, "the potential for reducing total fertility by increasing contraceptive use and reducing contraceptive failure is fairly limited." In addition, the potential demographic impact of a new method of contraception may be limited: "Even if a method with a zero failure rate were to replace all existing methods used in Peru, the TFR would decline by only seven or eight percent. The demographic potential of new contraceptive methods lies principally in attracting women who do not [practice] contraception."—*M. Klitsch*

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High-Parity Women Are Found to Have Elevated Risk of Cervical Cancer

Women who have had many pregnancies are at increased risk of developing invasive cervical cancer, according to a recent study conducted in Central America and South America.[1] The study found that women who had been pregnant 6–7 times were at three times the risk of developing cervical cancer compared with women who had been pregnant once or not at all, and women who had been pregnant 12 or more times were at 4–5 times the risk. This increased risk was related only to pregnancies ending in live births. In addition, the association between high parity and risk of developing cervical cancer was stronger among premenopausal women and among women who had used oral contraceptives. The detection of two strains of human papillomavirus that are thought to be a cause of invasive cervical cancer was not significantly associated with the number of births and did not explain the strong relationship between cervical cancer and parity. The investigators suggest that the mechanism may be linked to the hormonal, nutritional or immunosuppressive effects of pregnancy or the cervical trauma caused by delivery.

Between 1986 and 1987, researchers interviewed 759 women who had been recently diagnosed with invasive cervical cancer and 1,430 age-matched controls from the same residential districts in Colombia, Costa Rica, Mexico and Panama. Interviewers obtained information on sociodemographic factors, medical history, marital status, sexual behavior, occupational and residential patterns, pregnancy and menstrual history, contraceptive use, hygiene, smoking, diet and family history. In addition, cervical cell samples were obtained from all cases and controls and were tested for the presence of human papillomaviruses using a filter in situ hybridization technique.

The analysis was restricted to women who were or had been sexually active. Major nonreproductive risk factors for cervical cancer were early age at first intercourse, multiple sexual partners, absence of prior Papanicolaou smears and limited education. The researchers adjusted for these variables, along with age of the woman, in determining relative risk estimates.

A total of 745 cases (98.2 percent) and 1,377 controls (96.3 percent) reported ever having been pregnant, with a mean number of 6.8 pregnancies among cases and 5.5 among controls. The risk of developing cervical cancer increased linearly with the number of pregnancies above zero or one: For example, the adjusted relative risk among women who had had 6–7 pregnancies was more than three times that of women who had had one or no pregnancies, and the risk increased to four and five times for women who had had 12 or 14 pregnancies, respectively. This relationship was strongest among women in Mexico City, where the risk among those with more than 10 pregnancies was five times greater than among those with one or no

pregnancies; the risk for comparable women in Bogotá was three times greater. In all four countries, the association existed only for pregnancies resulting in live births; pregnancies ending as miscarriages, abortions or stillbirths did not contribute to an increased risk of developing cervical cancer.

A reduced risk for cervical cancer was found among women who had ever had a prenatal checkup, who had experienced complications during pregnancy and who had ever had a cesarean section. Each of these three associations persisted after adjustment for the others. The reasons for these associations are unclear, but the researchers suggest that they may reflect social class effects. No association was found with complications during or after delivery or with sexual intercourse either during pregnancy or within the first two months after delivery.

The number of births appeared to be a stronger risk factor among premenopausal women than among those who had completed menopause: Among premenopausal and postmenopausal women, the relative risks associated with 10 or more live births were 4.0 and 2.3, respectively. Smoking and oral contraceptive use were not found to be significant risk factors among women in this study. However, oral contraceptive use was associated with a greatly increased cancer risk among women of high parity: Women who had had 10 or more births and had used the pill had a ninefold increased risk compared with those who had had one or no births, while women of the same parity who had not taken the pill had just a threefold increased risk. Detection of human papillomavirus type 16 or type 18 was associated with an overall increased risk for cervical cancer, but the infection rate did not rise as the number of births increased.

The researchers note that others may have failed to find an association between parity and cervical cancer because there are few populations of women with such high parity. They suggest several potential explanations for the observed association: For example, pregnancy's immunosuppressive effect may increase susceptibility to certain infectious agents; alternatively, cervical cancer may be influenced by the hormonal changes that occur during pregnancy, or may be linked with folacin deficiency or other nutritional effects. The researchers also observe that trauma to the cervix during delivery may play a role in the etiology of cervical cancer, thereby increasing the risk for multiparous women.—*M. Witwer.*

Reference

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Gynecologic Disorders Are Common in Rural Areas Of India and Bangladesh, but Treatment Is Lacking

Reproductive tract diseases are widespread in rural India and Bangladesh, according to two recent studies. A study looking at a wide range of gynecologic problems among rural women in India found that although only about half reported gynecologic symptoms, nearly all had one or more reproductive tract disorders, with an average of almost four per woman. Infections accounted for half of these disorders.[1] Furthermore, a study of gynecologic infections among women in rural Bangladesh revealed that slightly less than one-quarter of those surveyed reported symptoms and two-thirds of the symptomatic women were found to have clinical evidence of such infection.* The study also found that IUD users and sterilized women were four times as likely as nonusers to report symptoms of gynecologic disease and over six times as likely to show clinical evidence of disease.[2]

The Indian Study

The research in India was conducted in two villages in Gadchiroli, a rural district of Maharashtra state. All women in those villages who were 13 and older or had reached menarche were invited to participate in the study, whether or not they had symptoms of reproductive tract disease. Out of 1,104 eligible women, 654 (59 percent) agreed to participate. These women were interviewed and all but four were given a physical examination. Those who were found to have a disease were offered treatment. (A random sample comprising 25 percent of the nonparticipants found that the women who participated did not differ greatly from those who did not.)

Of the 650 participants, 71 percent (462) were currently married and living with their husbands. Fifty-five percent (254) of this group were using a method of contraception: Most were themselves sterilized (82) or were protected by their husband's vasectomy (151). Female contraceptive methods were being used by 94 women at the time of the study, and another 29 had used these methods in the past. Overall, however, only 22 percent of ever-married women had used contraceptives.

A total of 360 women (55 percent of all who participated) had one or more gynecologic complaints. In addition, 197 reported low backache and 86 reported lower abdominal pain. On examination, 559 were found to have one or more gynecologic disorders; the average was 3.6 disorders per woman. Infections accounted for half of the cases diagnosed: Overall, 347 women (62 percent of those with a gynecologic disorder) were diagnosed as having bacterial vaginitis, 190 had candida vaginitis, 157 had pelvic inflammatory disease, 78 had trichomonas and 68 (11 percent) had syphilis. In addition, 272 had cervicitis, 269 had dysmenorrhea and 255 had cervical erosion. No cases of carcinoma were found.

Women with a contraceptive history were more likely than never-users to suffer from menstrual disorders (75 percent vs. 46 percent), vaginal infections (98 percent vs. 81 percent), cervical diseases (83 percent vs. 67 percent) or pelvic inflammatory disease (48 percent vs. 23 percent). However, contraceptive use can be a factor in only a small proportion of this morbidity, because 78 percent of the married women had never used any contraceptive method.

Although 55 percent of the Indian women with reproductive tract problems were aware of having a disorder, only eight percent had ever had a gynecologic examination or treatment. The investigators point out that even symptomless women were likely to have one or more reproductive tract disorders, indicating that symptoms are an insensitive tool for screening in the presence of a high prevalence rate. Moreover, reliance on gynecologic symptoms described by the women when their histories were taken often resulted in underestimates—especially in regard to vaginal discharge and menstrual problems—because of the women's concept of what is normal.

*For cultural reasons, only symptomatic women could be referred for examination.

The Bangladeshi Study

Currently married women of reproductive age living in the Comilla district villages of Bangladesh receive comprehensive maternal and child health and family planning services from the Matlab field station of the International Centre for Diarrhoeal Disease Research as part of an ongoing research effort called the Family Planning Health Services Project (FPHSP). The Matlab project is a village-based umbrella program conducted in four blocks of 20 experimental villages each and in a comparison area. Every two weeks, 80 community health workers visit the area to provide maternal and child health and family planning services and to monitor demographic events. The health workers are literate married women who practice contraception and are from respected families in the community.

Each of the four blocks of the area has a community-donated health center that provides basic health services to support the field activities of the health workers. Each center is staffed by a female paramedic who has completed an 18-month government-sponsored course in family planning services, pregnancy, delivery and basic maternal and child health care. A female physician provides further technical support.

A target population was identified by random selection of 40 (50 percent) of the health workers; these women administered a standardized questionnaire to all of their clients who were using IUDs or hormonal methods (oral contraceptives and injectables) or had been sterilized, and to a 20 percent subsample of their clients who were not practicing contraception. During visits to the clients' homes, the health workers collected information on the women's reproductive history, contraceptive use, menstruation-related behavior, sexual behavior and history of reproductive tract symptoms.

Of 3,238 potential participants, 149 did not meet enrollment criteria, 155 were not at home on repeated visits and five refused to participate. The remaining 2,929 women were enrolled in the study. A total of 640 participants reported symptoms suggesting reproductive tract infection. Among those reporting symptoms, 97 percent described abnormal discharge, and 94 percent of those said the discharge had been present for at least 60 days.

For all analyses of data by birth control method, the investigators omitted women who could not be classified either as nonusers or as current users of a single method. The criteria used for these classifications included both duration of current method use and length of time since the most recent prior method had been dropped. These periods, which varied according to method, were based on the time necessary for a given method to start or stop producing a physiologic effect. According to the study criteria, the sample included 396 current nonusers and 2,330 users of a single method; 203 women did not meet the criteria for either classification. Among the single-method users, 452 currently used the IUD, 1,255 relied on hormonal methods and 623 were sterilized. The percentage of women reporting symptoms varied by contraceptive method: IUD users and sterilized women were each approximately four times as likely as nonusers to report abnormal discharge or lower abdominal pain. Users of hormonal methods, on the other hand, were slightly less than twice as likely as nonusers to report these symptoms.

The women who reported vaginal discharge suggestive of lower reproductive tract infection or nonmenstrual or abnormal menstrual lower abdominal pain (which are suggestive of upper tract infection) during the week prior to interview were referred to the local health center for pelvic examinations and laboratory testing. Of the 640 symptomatic women, 486 underwent examination, resulting in 472 evaluable laboratory studies. The remaining 154 women (24 percent) refused to be examined. Overall, 68 percent of the 472 symptomatic women examined showed evidence of vaginal, cervical or pelvic infection. When they analyzed all participants by method used, the investigators found that sterilized women were the most likely to be infected (24 percent), followed by IUD users (22 percent), users of hormonal methods (six percent) and nonusers (four percent).

In a multivariate analysis of 2,542 women for whom information on all relevant variables was available an increased risk of infection was significantly associated with current use of an IUD or with sterilization, with use of rags during menses, with prior use of any contraceptive method and with more than six years' use of the woman's current method. Pelvic infection was uncommon among all method users. Cervical infection occurred most frequently among IUD users, and vaginal infection was most frequently diagnosed in IUD users and sterilized women and was least common among nonusers and users of hormonal methods.

The prevalence of gynecologic and sexual disorders found in these two investigations suggests that reproductive care to women should be broadened beyond that currently provided by maternal and child health and family planning programs.

The findings from these studies suggest that in both Bangladesh and India, certain family planning interventions may be associated with an increased risk of reproductive tract infections. However, women who used contraceptives tended to consider any gynecologic or sexual disorder as a side effect of method use. In both countries, inexpensive, clinic-based services directed at accurate diagnosis and treatment of reproductive tract infections would strengthen maternal and child health and family planning programs by decreasing method-associated side effects and offering essential reproductive health care in a socially acceptable setting.—*F. Althaus*

References

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Indonesian Fertility Rate Falls As Age at Marriage, Modern Method Use Rise

Fertility in Indonesia appears to have declined rapidly over the past decade: The total fertility rate (TFR) fell from 4.3 lifetime births per woman in 1981–1983 to 3.3 in 1984–1987. In addition, young women marry and start childbearing later and want fewer children than their older counterparts. Knowledge of contraceptive methods is almost universal: About half of currently married women are practicing contraception, and almost all current users rely on modern methods (the pill, the IUD or injectables). These are some of the major findings of the National Indonesia Contraceptive Prevalence Survey (NICPS) carried out in 1987 as part of the worldwide Demographic and Health Survey project.[1]

The Indonesian archipelago, lying between Asia and Australia, is made up of five major islands (Sumatra, Java, Kalimantan, Sulawesi and Irian Jaya) and more than 13,000 smaller ones, 6,000 of which are inhabited. Indonesia's multiethnic population is the fifth largest in the world; at the current growth rate of 2.2 percent annually, it will reach 216 million by the year 2000.

The NICPS data are based on interviews with 11,884 ever-married women aged

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15–49 living in 20 of Indonesia's 27 provinces, which contain 93 percent of its population. Overall, 23 percent of the women interviewed were uneducated, 40 percent had some primary schooling, 23 percent had completed primary school and 13 percent had a secondary or higher education. There has been considerable improvement in the education of women in the last 30 years: Only eight percent of women aged 15–19 were uneducated, compared with 47 percent of those aged 45–49. Overall, 73 percent of the women lived in rural areas, with the remaining 27 percent living in urban areas. Women living in urban areas generally were better educated than those in rural areas: Almost 30 percent of urban women had a secondary or higher education, compared with seven percent of rural women; 27 percent of rural women were uneducated, compared with 12 percent of urban women. More than 92 percent of the women surveyed were Muslim; the remainder were Christian (five percent), Hindu (two percent) or Buddhist (one percent).

Marriage and Fertility

In Indonesia, marriage occurs early and is nearly universal. The proportion of ever-married women rises from 90 percent of those aged 25–29 to 99 percent of those aged 40–49. However, the age at which women enter marriage has risen over the past 25 years: The median age at first marriage was 16.5 years among women aged 45–49, 17.6 among 30–34-year-olds and 19.6 among 20–24-year-olds. Seventy-nine percent of women aged 45–49 had married before age 20, compared with only 53 percent of those aged 20–24. Urban women were about two years older at first marriage than were their rural counterparts (18.8 vs. 16.6), and the difference in median age at marriage between older and younger urban women was substantial (17.7 among 45–49-year-olds vs. 20.3 among 25–29-year-olds). Education is also an important factor in age at first marriage: Women with a primary education were about one and one-half years older at first marriage than were women with no education (17.5 vs. 15.8, respectively), and women with a secondary or higher education were almost four years older when they married than were women with a primary education.

For the 1984–1987 period, the TFR in Indonesia was 3.3 lifetime births per woman, down from 4.3 births per woman in 1981–1983. The TFR was lower among urban women than among rural women (2.8 births per woman vs. 3.6 per woman), and had declined more quickly among urban women than among rural women between the two periods (by 24 percent and 20 percent, respectively). Women with a secondary or higher education had an average of one lifetime birth fewer than those who had a primary education only (2.4 vs. 3.4). In addition, between 1981–1983 and 1984–1987, the TFR among women with more education declined faster than did the TFR among women with less education (25 percent vs. 16 percent).

Age at first birth has risen among urban women over the past 25 years: On average, women aged 45–49 had their first child at 20.4 years, while those aged 25–29 were 21.7 years old at first birth. Among rural women, however, age at first birth has remained at just under 20.

On average, women who had had a child in the three years preceding the survey breastfed for 25 months and experienced postpartum amenorrhea for 11 months. Although the mother's age had no significant effect on the length of breastfeeding, the mean duration of breastfeeding was considerably longer among rural women than among urban women (27 months vs. 21 months), and uneducated women breastfed for much longer than did women with a secondary or higher education (28 months vs. 19 months). Because urban women and educated women breastfed for shorter periods of time than rural or uneducated women, they experienced postpartum amenorrhea (and therefore insusceptibility to pregnancy) for a shorter time. Prolonged sexual abstinence after childbirth is not customary in Indonesia (the average duration is five months) and therefore does not affect exposure to risk of pregnancy.

Contraceptive Knowledge and Use

Knowledge of family planning methods is high in Indonesia: Overall, 94 percent of ever-married women and 95 percent of currently married women recognized at least one method, and almost all of these women recognized at least one modern method. The most widely known methods were the pill, injectables and the IUD (recognized by 91 percent, 84 percent and 82 percent of currently married women, respectively), followed by the condom (65 percent), female sterilization (53 percent) and NORPLANT® (30 percent). Of the traditional methods (herbs, abdominal massage, withdrawal and periodic or prolonged abstinence), only periodic abstinence and withdrawal were known to more than 15 percent of currently married women, which may in part reflect the fact that the other three methods were not probed. There was little difference by urban-rural residence, region or education in the proportion of women recognizing modern methods, except that women with no education were less likely than women in any of the other education groups to know of a modern method (83 percent vs. 96–100 percent).

The proportion of women who recognized any family planning method increased sharply during the decade preceding the study. According to the Indonesian Fertility Survey, which was conducted in Java and Bali in 1976, 77 percent of ever-married women recognized a family planning method, 11 percent knew about female sterilization and 17 percent had heard of injectables.[2] The corresponding proportions for the 1987 NICPS were 95 percent, 57 percent and 84 percent.

Sixty-two percent of ever-married women and 65 percent of currently married women had ever used a method. Almost all of those who had ever used family planning had used a modern method at some time, and ever-use was highest in the middle age-groups (25–39 years old). Forty-eight percent of currently married Indonesian women were practicing contraception at the time of the survey, with 44 percent using modern methods and four percent using traditional methods. The most commonly used methods were the pill (16 percent), the IUD (13 percent) and injectables (nine percent), followed by female sterilization (three percent), condoms (two percent), periodic abstinence and withdrawal (one percent each) and male sterilization and NORPLANT (less than one-half of one percent each).

Women in the middle of their childbearing years were more likely to be using a family planning method than were older or younger women: The highest rate of use (59 percent) was among women aged 30–34. Women under 30 were more likely to be using the pill and injectables, while those over 30 were more likely to rely on the IUD, condoms or male or female sterilization. Current use was more common among urban married women than among those living in rural areas (54 percent vs. 45 percent). The most popular methods among urban women were the IUD and the pill (almost 13 percent each), followed by injectables (12 percent), female steril-

ization (six percent) and condoms (four percent). Higher proportions of rural women used the pill (17 percent) and the IUD (13 percent), and lower proportions relied on injectables (eight percent), female sterilization (two percent) or condoms (less than one percent). Reliance on family planning increased with education: Overall, 33 percent of currently married women with no education were using a method, compared with 64 percent of those with a secondary or higher education. Although pill use did not vary much by educational level, the use of almost all other methods, including traditional ones, was higher among more educated women. Contraceptive use increased rapidly with number of living children, reaching a peak among women with three children and declining among those with four or more children. Among currently married women who were practicing contraception, 73 percent of those who were childless used the pill, compared with 28 percent of those who had four or more children.

During the 25 years before the survey, a dramatic change occurred in the number of living children women had when they began practicing contraception: Six percent of ever-married women aged 45–49 at the time of the survey had begun using contraceptives when they had no child or one, compared with almost 46 percent of those aged 20–24. This trend may indicate a decrease in preferred family size as well as an increase in the use of contraception for birthspacing.

Fertility Expectations

In 1987, currently married women wanted 3.2 children, on average. The ideal number of children was strongly related to age and education: Ever-married women aged 45–49 wanted 3.8 children, while those aged 15–19 wanted 2.6 children. Women with no education wanted 3.4 children, on average, while those with a secondary or higher education wanted 2.9 children. There was little difference in the number of children wanted by rural and urban women.

Over 51 percent of the currently married women interviewed wanted no more children or were sterilized. The proportion intending to stop childbearing rose with increasing number of children, and was higher among urban women (58 percent) than among their rural counterparts (49 percent). Overall, the proportion of women who wanted no more children fell with increasing education, but that pattern changed with increasing parity: Among women with one child, the proportion wanting no more children fell from 26 percent of those with no education to 12 percent of those with a secondary or higher education, while among those with four or more children, those proportions were 75 percent and 90 percent, respectively. Of the 42 percent of currently married women who wanted to have more children, the majority did not want to do so soon: Twenty-three percent wanted another child within two years, while 65 percent wanted to wait at least two years.

Of all births in the five years preceding the survey, 75 percent were wanted at the time of conception, 18 percent were mistimed (i.e., they were wanted at a later time) and six percent were unwanted. The proportions of unwanted or mistimed births increased substantially with birth order: Of first births, less than one-half of one percent were unwanted and five percent were mistimed, but for births of order four or higher, 13 percent were unwanted and 27 percent were mistimed.

Overall, 41 percent of currently married women were exposed to the risk of pregnancy, were not practicing contraception and did not want another birth immediately (i.e., they were in need of family planning). More than half of these women wanted no more children, and slightly less than half wanted to postpone the next birth for at least two years. However, only about one-third of them planned to use family planning in the future. A larger proportion of rural than of urban women were in need, primarily because of a greater desire for spacing births (43 percent vs. 35 percent). Of those who were in need, almost identical proportions of urban and rural women intended to use family planning. The proportion of women in need was almost twice as high among women with no education as among those with a secondary or higher education (52 percent vs. 28 percent). Moreover, only eight percent of uneducated women in need intended to use a family planning method, compared with 16 percent of those with a primary education and 14 percent of those with a secondary or higher education.

Infant Mortality and Health

During the five years before the survey, 72 percent of all births took place at home and only 20 percent took place in a hospital or health center. Moreover, 61 percent of births were attended by traditional birth attendants, 32 percent by trained nurses or midwives and four percent by doctors. Medical personnel (doctors, nurses or trained midwives) assisted in about 70 percent of births in urban areas but in only about 25 percent of those in rural areas. Assistance by medical personnel was also more common for births to women with a secondary or higher education.

During the 15 years preceding the survey, infant and child mortality in Indonesia decreased substantially, but remained high. Between the periods 1972–1976 and 1982–1987, infant mortality declined by 13 percent (from 81 to 70 deaths per 1,000 births), child mortality dropped by 42 percent and mortality for all children under five decreased by 25 percent. On average, during the 10 years preceding the survey, 118 of 1,000 boys and 105 of 1,000 girls did not live until their fifth birthday. Infant mortality was higher for births to rural mothers (84 per 1,000) than for births to urban mothers (51 per 1,000), as was child mortality (43 and 28 per 1,000, respectively). The mortality rate among infants born to uneducated mothers (99 per 1,000 births) was almost three times the rate among infants born to mothers with secondary or higher education (34 per 1,000). Other factors associated with higher infant and child mortality were extremes in the mother's age at birth, a birth order of seven or higher and short intervals between births.—*F. Althaus*

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Modern Contraception Is Little Known, Rarely Used In Ondo State, Nigeria

Despite some preliminary signs of fertility decline in Ondo State, Nigeria, fertility rates remain relatively high: Women can expect to bear six children, on average, and they generally believe that that number of children is ideal. Only about half of the married women have heard of a contraceptive method, and just six percent of married women are currently practicing contraception. Breastfeeding is virtually universal and is practiced for about 18 months, but postpartum sexual abstinence lasts even longer and is the single most important determinant of birth intervals. These are some of the main findings of the Ondo State Demographic and Health Survey (ODHS), conducted in 1986 as part of the Demographic and Health Surveys (DHS) project.[1]

DIGEST

Because no officially accepted national census has been conducted in Nigeria since 1963, there was considerable uncertainty by the 1980s about the size and distribution of the nation's population. Ondo State, located along Nigeria's Atlantic coast, is thought to have had approximately 3.3 million residents in 1986, out of a total Nigerian population estimated at 100 million. It is believed that the state's population is 85–90 percent Yoruba and 85–90 percent Christian.

Because the national government's effort to divide the country into enumeration areas—to establish a population-based sample frame in the absence of reliable census data—was most advanced in Ondo State, the survey was limited to that state, making the ODHS one of the few DHS projects to cover only one region of a country rather than the entire country. A total of 4,213 women aged 15–49 were surveyed. Forty percent lived in urban areas, 52 percent were in rural areas and eight percent lived in the river valleys of the coastal regions. Eighty-five percent were Christian, 13 percent were Muslim and two percent followed other religions. Eighty-six percent were of Yoruba background. Thirty-seven percent had no education, 24 percent a primary education, 33 percent at least some secondary schooling and six percent some postsecondary education. Eighty-one percent of 15–19-year-olds and 64 percent of 20–24-year-olds had at least some secondary schooling, compared with nine percent and three percent of those 40–44 and 45–49, respectively.

Marriage and Fertility

Sixty-seven percent of respondents were currently married, with the proportion ranging from 57 percent of 20–24-year-olds to 95–98 percent of 30–44-year-olds. Thirty percent were single, and three percent were widowed, divorced or separated. Overall, 46 percent of married respondents reported that they were in a polygynous union, ranging from 25 percent of 20–24-year-olds to 46 percent of 30–34-year-olds and 62 percent of 45–49-year-olds. Polygynous unions were most common among women living in riverine areas (56 percent), among those with no education (55 percent) and among Muslims (57 percent) and other non-Christians (62 percent). However, such unions also were often found among urban residents (40 percent), among those with at least some secondary education (23 percent) and among Catholics and Protestants (42–44 percent), leading the authors of the survey report to refer to the "general acceptance [of polygyny] throughout the population."

The median age of entry into first union varied little by age-group: Among those aged 45–49, the median was 19.9; it fell to 18.9 among 30–34-year-olds, but rose again to 20.2 among 25–29-year-olds. However, the percentage who were single at age 20 has increased somewhat in recent years: Forty-eight percent of 45–49-year-olds and 40 percent of 30–34-year-olds reported that they were single at age 20, compared with 52 percent of 25–29-year-olds and 62 percent of 20–24-year-olds. Overall, women with at least some secondary education entered their first union at a mean age of 22, compared with a mean age of about 19 among those with less education.

The total fertility rate (TFR) for the five years preceding the survey was 6.0 births per woman. The five-year TFR was virtually the same in urban and rural areas (5.9 and 6.0 births per woman, respectively), but was somewhat higher in the riverine areas (6.4 per woman). The TFR among those with no education was 6.7 births per woman, and the TFR among those with a primary education was 7.1 per woman; the rate among respondents with at least some secondary schooling, however, was 5.4 births per woman. The TFR was somewhat lower among Protestants (5.8 births per woman) than among Catholics (6.6), Muslims (6.4) or other women (6.3).

A comparison of TFRs for the two three-year periods preceding the survey indicates that fertility in Ondo State may have declined somewhat, from 6.3 lifetime births per woman in 1981–1983 to 5.6 per woman in 1984–1986. The possibility of a recent fertility decline is supported by the fact that women 40–49 years of age had had a mean of 6.9 children at the time of the survey, indicating that fertility in the preceding two decades must have been higher than at the time of the survey.

Currently married respondents had had a mean of 4.7 births at the time of the survey, and 40 percent of these women had had six or more births. Almost all women over age 30 had had a child, indicating that primary infertility is rare in this area of Nigeria. The median age at first birth in Ondo State was 20.6, and varied little by the woman's age at the time of the survey. Forty-seven percent of 30–34-year-olds and 39 percent of 25–29-year-olds had had their first birth by age 20, compared with just 28 percent of 20–24-year-olds. The greatest differential in age at first birth was by education: Half of women with some secondary education had had their first child by age 23, compared with a median of 20 among women with less education.

Breastfeeding is common in Ondo State, with 93 percent of recent births being breastfed for at least three months, and over 70 percent for at least one year; the mean duration of breastfeeding was 18 months. While postpartum amenorrhea lasted for 14 months, on average, postpartum sexual abstinence was observed for an average of 23 months. The report concludes that "sexual abstinence plays a crucial role in determining pregnancy intervals." However, reliance on abstinence may be declining: Women under 30 abstained for 20 months, on average, while those 30 and older abstained for an average of 25 months. In addition, urban residents abstained for 20 months, while rural women did so for 26 months. Those with some secondary education breastfed for only 14 months and abstained for just 18 months, on average, while women with no education breastfed for 20 months and abstained for 27 months. In addition, Catholics and Protestants breastfed for 3–4 months less, on average, than Muslims and abstained for 4–5 months less.

Contraceptive Knowledge and Use

Respondents were first asked what contraceptive methods they knew of, and then were read descriptions of various methods and were asked which methods they recognized. Only 51 percent of currently married respondents knew of a contraceptive method, with the best-known methods being injectables (41 percent), the pill (37 percent), female sterilization (25 percent) and the IUD (24 percent). For the most part, contraceptive knowledge was greater among women in their late 20s and early 30s, among urban women and among those with a secondary education. Almost all women who had heard of a method knew where they could obtain it; the vast majority in each case said they would go to a government hospital.

Thirteen percent of currently married women had ever used a method of contraception, while six percent were practicing contraception at the time of the survey. Two percent relied on periodic abstinence and one percent each used the pill, injectables or the IUD. A subsample from the 1981–1982 Nigeria Fertility Survey, restricted to respondents from Ondo State, indicates that at that time, only about one percent of all respondents were practicing contraception, compared with nine percent of all women in the ODHS. Thus, there

appears to have been a slight increase in contraceptive practice.

Surprisingly, current use was higher among all women (nine percent) than among currently married women, apparently because of relatively high levels of use among young unmarried women. For example, only three percent of currently married 15–19-year-olds and five percent of 20–24-year-olds were using a method, compared with 12 percent of all 15–19-year-olds and 13 percent of all 20–24-year-olds. According to the survey report, this differential is probably related to the fact that many young married women are either pregnant or postpartum or want to start their families, and thus not in need of family planning; in addition, many single women may be practicing contraception to avoid a premarital pregnancy.

Urban women were twice as likely as rural women to be current users (8.9 percent vs. 4.5 percent), and only one percent of riverine dwellers were practicing contraception. Fifteen percent of women with at least some secondary education were using a method at the time of the survey, compared with six percent of those with a primary education and three percent of those with no education. Protestants were more likely to be using a method (seven percent) than were Catholics (four percent) or Muslims and other women (three percent each). Two percent of those with no living children were using a method, compared with 5–7 percent of all other women.

Seventy-seven percent of women who knew of at least one contraceptive method approved of family planning; 60 percent knew their husband's attitude, and nearly three-quarters of these reported that he approved of family planning. Rural women were somewhat less likely to say that their husband approved than were other women, while those with at least some secondary education were far more likely to say so than were less educated women (57 percent, compared with 29–40 percent). Forty-two percent of all women who knew of at least one method said they had discussed family planning with their husband at least once in the preceding year.

Twenty-three percent of currently married women said that they wanted no more children, 38 percent wanted another child but not in the next two years, 20 percent wanted another within two years, seven percent wanted another but did not know when and 11 percent were undecided. Thus, 65 percent wanted another child, but 61 percent either did not or wanted to wait at least two years until their next birth.

The proportion who wanted no more children ranged from less than five percent among those with fewer than three children to nearly 50 percent of those with six or more children. In addition, the proportion who wanted to have a child within the next two years was greater than one-third only among those with no living children; more than half of women with 1–3 children preferred to wait at least two years before having another child. Likewise, 59–62 percent of women 15–29 years of age wanted to wait at least two years to have another child. Those who had no education were far more likely than women with some education to want no more children (32 percent, compared with 12–15 percent), and this was true regardless of the woman's number of living children.

Overall, 21 percent of married women wanted no more children and were not practicing contraception, and another 54 percent wanted to wait at least two years to have another child but were not using a method; thus, 75 percent of women in Ondo State could be defined as in need of family planning. Those with no education were more likely to be in need, no matter how the measure is defined: Thirty-one percent of women with no education were not using a method and wanted no more children, compared with 13 percent of those with some primary schooling and eight percent of those with some secondary education; likewise, 79 percent of those with no education were not practicing contraception and either wanted no more children or wanted no more in the next two years, compared with 74 percent of those with some primary education and 66 percent of those with at least some secondary education.

Maternal and Infant Health

The infant mortality rate for Ondo State over the 1981–1986 period was estimated at 56 deaths per 1,000 live births, while the child mortality rate was calculated to be 55 deaths per 1,000. Thus, the total mortality rate among children under five at the time of the survey was over 100 deaths per 1,000 live births. Infant mortality rates were substantially higher among women who gave birth before age 20 and among women with birth intervals shorter than two years. Both infant and child mortality were substantially lower among women with at least some secondary education, although these rates were based on small numbers of women. Approximately one in five of the children born to the women surveyed had died by the time of the survey, including 27 percent of those born to 45–49-year-olds.

Eighty percent of the women surveyed said they had received prenatal care in the past five years from a doctor, nurse or midwife, and 71 percent had received a tetanus injection. Furthermore, 56 percent said they had been assisted at childbirth by a nurse or midwife. The largest divergence from these levels was in the riverine areas of Ondo State, where only 17 percent of women had received prenatal care from one of these sources, only 13 percent had been vaccinated against tetanus and just nine percent had had professional assistance at delivery.—*M. Klitsch*

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In Trinidad and Tobago, Fertility Rates Are Low And Method Use Is High

Women in Trinidad and Tobago will have about three children, on average, if current rates of childbearing continue. In addition, nearly 100 percent of women currently in a union know of at least one modern method and over half of women in a union practice contraception. Among women with less than a primary education, female sterilization is the most popular method, while among those with at least a secondary education, the pill is the most widely used method of contraception. These findings represent the main highlights of the 1987 Trinidad and Tobago Demographic Health Survey (DHS), which studied 3,806 women 15–49 years of age.[1]

Trinidad and Tobago, a republic comprising two Caribbean islands, has a population of about 1.2 million. Africans and East Indians are the two largest ethnic groups, each making up about 41 percent of the population. Most of the residents are either Roman Catholic or Hindu. Literacy is nearly universal in the republic, and in 1980, 95 percent of the citizens reported having had at least some primary schooling.

Marriage and Fertility

According to the 1987 DHS, 41 percent of women in Trinidad and Tobago are legally married. An additional 14 percent are in a common-law union, another 14 percent are involved in a sexual relationship with someone with whom they do not live (i.e.,

a "visiting union"), eight percent are widowed, divorced or separated and 23 percent have never been in a union of any kind. The median age at first union in most age, ethnic, residence and education subgroups is around 20. However, age at first union is lower among those with less than a primary education (17.9) and substantially higher among those with a secondary education or more (24.1). In addition, women aged 45–49 have a median age at first union of 18.8, indicating that women now are entering their first relationship somewhat later than they did several decades ago.

The mean number of children among all women in Trinidad and Tobago is 2.1, and among those in a union, 2.7. Only 11 percent of women 15–19 and 46 percent of those 20–24 have had a child. Seventy-five percent of women aged 25–29, however, have had one or more children, and 96 percent of those 45–49 have had at least one child. Childbearing begins earlier among women currently in a union: Forty-seven percent of 15–19-year-old women in a union, 70 percent of those 20–24 years old and 84 percent of those 25–29 years old have had a child. Only two percent of 45–49-year-old women currently in a union have never had a child.

For the five years preceding the survey, the total fertility rate (TFR) was 3.1 births per woman, down from 3.3 in 1981–1983. Although the fertility rate among urban women did not change between 1981–1983 and 1984–1987 (3.0 in both periods), the TFR decreased from 3.6 to 3.2 among rural women. The TFR decreased among women with either a partial or a complete primary education, increased among those with a partial secondary education and remained the same among women who had completed their secondary education. Nevertheless, the TFR for women with less than a primary education was still substantially higher in the latter period than that for women with at least a secondary education (3.6 vs. 2.3).

Ethnicity is also associated with fertility: The current TFR among women of Indian descent is 2.8, while that among those of African origin is 3.5. Further, while the Indian TFR has decreased by about 10 percent since the early 1980s, the African TFR has remained almost the same.

A comparison of the current TFR with the mean number of children ever born to women aged 40–49 reveals a notable change in fertility in recent years. The mean number of children ever born to women 40–49 is 4.3, over one-third higher than the current TFR (3.1). The differences between the TFR and fertility among 40–49-year-olds are most pronounced among rural women, women with the least education and women of Indian descent, indicating that fertility declines have been greatest in these subgroups.

At the time of the survey, the median age at first birth among women aged 25–49 was 21.7. The data reveal that there has been a steady increase in the median age at first birth: Among 45–49-year-olds, the median is 20.5, compared with 21.6 and 22.2 among those 35–39 and 25–29, respectively. Women 25–49 with a secondary education or more first gave birth at a median age 5.9 years older than those who never completed their primary schooling. Among women aged 25–29, 40–44 and 45–49, those of African descent had a slightly higher median age at first birth than those of Indian origin. In addition, urban women were almost a year older than rural women at first birth.

Most women in Trinidad and Tobago breastfeed their babies (89 percent). However, the duration of breastfeeding is relatively short. In 1987, the overall median duration was 6.3 months. The median duration of amenorrhea, on the other hand, was only 2.3 months. In addition, most women did not practice abstinence for more than two months following delivery. Thus, women who wish to prevent pregnancy need to adopt a family planning method soon after delivery.

Contraceptive Knowledge and Practice

Contraceptive knowledge in Trinidad and Tobago is high: In 1987, 97 percent of all women and 99 percent of those currently in a union knew of at least one modern contraceptive method. Among women overall, 63 percent have ever used any method and 60 percent have ever used a modern method. Of women currently in a union, 83 percent have used any method and 79 percent have used a modern one. The pill has been the most widely used method (42 percent overall), followed by the condom and withdrawal (37 percent and 23 percent, respectively).

In 1987, 53 percent of women in a union were currently practicing contraception and 44 percent were currently using a modern method. Women 20–44 years of age are the most likely of those in a union to be using a modern contraceptive method: Approximately 45 percent are doing so, compared with 30 percent among both women 15–19 and women 45–49.

The pill and the condom are the most commonly used methods, with 14 percent and 12 percent of women in a union currently using them; sterilization is the next most widely used method, with eight percent of women in a union protected by that method. Female sterilization is much more prevalent among older women; in fact, among those 35–49, it is the most popular form of contraception, with 15–18 percent of those in a union relying on it.

Current use of contraceptives is strongly related to education. Among women in the highest education category, 68 percent practice contraception, compared with 41 percent of those with less than a primary education. In addition, while female sterilization is the most popular method among those with the least amount of schooling (14 percent), the pill is the most widely used among those in the highest education group (16 percent).

Twenty-eight percent of women 15–49 who were ever in a union began practicing contraception before having any children; 25 percent began using contraceptives after they had had one child, 12 percent after they had had two, seven percent after they had had three and nine percent after they had had four or more children. Current age is associated with whether women began using contraceptives before having a child: Over 40 percent of women 15–24 first practiced contraception prior to having a child, compared with only 17 percent of women 40–44 and 10 percent of those 45–49.

Almost one-third of the women sampled discontinued use of a contraceptive method in the five years before the survey. Health concerns were the major reason users of the pill, the IUD and injectables gave for temporary or permanent discontinuation (43 percent, 51 percent and 56 percent of those who had discontinued use, respectively). Among those who stopped using vaginal methods, rhythm or withdrawal, the primary reason given was method failure. Most of those who stopped using the condom did so because they wanted to become pregnant.

Overall, 42 percent of women in a union who are not currently practicing contraception say they intend to use a method in the future: Twenty-eight percent expect to begin practicing contraception within the next year, six percent say they will start in a year or more and seven percent are unsure about when they will begin use. Forty-six percent of the women not practicing contraception do not intend to use a method in the future, and 12 percent are

unsure. The pill and female sterilization are the methods most favored for future use.

Among women who say they have heard of a given contraceptive method, most know of at least one source where that method can be obtained. The primary sources named were government health centers, clinics run by the Family Planning Association of Trinidad and Tobago (FPATT), private sources (doctors, hospitals and nursing homes) and pharmacies. Current users were asked where they received their method. Most users of the pill, vaginal methods or the condom had gone to a pharmacy for the method, while most users of the IUD and female sterilization had visited a health center. Satisfaction with all the primary sources is high—89 percent of those using government centers or FPATT clinics reported no problems, as did 94 percent of users of private sources or pharmacies.

About half of women in a union who were able to name a method of contraception had discussed family planning with their partner in the year before the survey. The authors of the Trinidad and Tobago DHS consider that figure to be surprisingly low, given that knowledge about contraception is nearly universal and that over 80 percent of women in a union had ever practiced contraception. Women younger than 30 are more likely to have discussed family planning with their partners than are those 30 and older (59–63 percent vs. 16–51 percent). Only 30 percent of women 40–44 and 16 percent of women 45–49 had talked to their partners about contraception in the previous year.

Overall, the ideal family size of women in Trinidad and Tobago is relatively low. The mean ideal number of children among all women aged 15–49 is 2.9. Women with a primary education or less, however, have an average ideal family size of 3.1–3.6, while those with a partial secondary education or more report an average ideal family size of 2.7. The ideal number of children does not vary according to rural or urban residence.

The proportion of women at various parities who want no more children is consistent with the data on ideal family size. Overall, 47 percent of women in a union do not wish to have more children and 55 percent of those who have two children say they want no more children. Among those with three or more children, 64–70 percent do not want any more children. Most women consider themselves to have had enough children by the time they are 30 years old. Among those 30–49, 59–84 percent do not want any more children.

One-third of women in a union are said to be in need of family planning because they are not practicing contraception and they either want no more children or they want to delay their next birth. Of those women, 41 percent say they intend to practice contraception in the future.

Maternal and Child Health

According to the 1987 DHS, the provision of maternal and child health care services (by means of prenatal, postnatal and child health clinics) is a primary concern of the Trinidad and Tobago Ministry of Health. Indeed, infant and childhood mortality has decreased greatly since the early 1970s. In the period 1972–1976, infant mortality was 47 per 1,000 births, but it dropped by 44 percent to 26 per 1,000 births in 1982–1987. Childhood mortality decreased by 52 percent between those two periods, from 7.1 to 3.4 deaths per 1,000 children.

Consistent with the low infant mortality rate is a low prevalence of diarrhea among children younger than five. Only six percent of children had had an episode of diarrhea (defined as three or more loose or runny stools in a day) in the two weeks preceding the survey, and only two percent had had an episode in the previous 24 hours. Of the children who had had diarrheal episodes, 66 percent received oral rehydration therapy (ORT). Almost 90 percent of mothers with children under five years of age knew about ORT.

Prenatal care was provided to pregnant women almost universally in the five years preceding the survey. Although the DHS did not gather information on when care provided women with prenatal care. Eighty-four percent of women who gave birth in that period received prenatal care from a doctor, and 14 percent received it from a trained nurse-midwife. Tetanus immunization injections were given during pregnancy to 31 percent of the women who gave birth in the five years before the survey.

Despite the fact that cervical cancer is the second leading cause of cancer deaths among women in Trinidad and Tobago, only 31 percent of women ever in a union have ever had a Pap smear and only 11 percent had had a Pap smear in the past year. Urban women are almost twice as likely as rural women to have ever had a smear (41 percent vs. 22 percent), and women with a complete secondary education are much more likely than those with a partial secondary education or less to have had one (57 percent vs. 23–29 percent). Although the risk of cervical cancer increases with age, the utilization of Pap smears does not: Only 15 percent of women 35–39, 11 percent of women 40–44 and 10 percent of those 45–49 had had a Pap smear in the year preceding the survey.—*P. Rind*

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generar mayor demanda por los servicios de planificación familiar, incrementar el acceso a los servicios (incluyendo el mayor involucramiento del sector privado), aumentar la accesibilidad de los servicios, fomentar la mayor participación de la comunidad, y desarrollar las bases para un personal idóneo y un financiamiento suficiente. Además, un número de asuntos administrativos crecerá en importancia, tales como la eliminación de las deficiencias logísticas, la mejora de la supervisión, el aumento de la eficiencia de los sistemas administrativos de información, el mayor énfasis en los resultados de proyectos de investigación y evaluación, y el perfeccionamiento del adiestramiento.

Résumé

L'expansion des services de planification familiale au cours des années 90 ne nécessitera pas uniquement des fonds supplémentaires mais aussi des approches différentes et une meilleure planification et gestion du programme. Après examen et évaluation, le Fonds des Nations unies pour les activités en matière de population (FNUAP) conclut que certaines stratégies générales sont nécessaires au succès du programme. Ces stratégies comprennent renforcer l'engagement politique, générer une plus grande demande pour les services de planification familiale, rendre les services plus accessibles (notamment en faisant participer davantage le secteur privé), améliorer l'acceptabilité des services, accroître la participation communautaire et développer des bases adéquates de ressources humaines et financières. De plus, un certain nombre de questions administratives deviendront plus importantes et, à cet égard, il faudra s'efforcer d'éliminer les lacunes logistiques, d'améliorer la supervision et la formation, d'accroître l'efficacité des systèmes de gestion de l'information et d'insister davantage sur la recherche et l'évaluation.

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